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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

THE BRITISH GAS ACT AND AMERICAN REGULATION
MARTIN T. BENNETT

MICHIGAN'S POLICIES FOR STATE OWNED LANDS
WADE DE VRIES

LEGAL VERSUS ECONOMIC PRINCIPLES IN VALUATION
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LAND OWNERSHIP, UTILIZATION, AND TAXATION IN BAYFIELD COUNTY, WISCONSIN
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COLLECTIVE BARGAINING IN ELECTRIC INDUSTRY
CHARLES F. MARSH

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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

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AN ADAPTATION OF THE BRITISH GAS ACT TO AMERICAN PRACTICE AND REGULATION

By MARTIN T. BENNETT

AMONG the powers of regulatory bodies is that of prescribing the service which utilities must give. Service in this case may be defined as that which a consumer receives in exchange for payment. Rates are all given in units which must be defined in the standards for service, and the standards must include such provisions as are necessary to insure the proper measure of service. These standards were originally obtained from a survey of what had been given by the utilities in the past and represented only an attempt to continue the old practices.

The standards for gas service in most cases include meter accuracy requirements and pressure requirements. However, the most important part of the standards is concerned with the composition and heating value of the gas and here one finds the greatest variations in the standards which are maintained in the different states and in some cases within a single state. The basis for this difference is that various methods of manufacture and various methods of operation produce gases of varying compositions. Originally the heating value requirements were obtained from a more or less arbitrary conversion from the candle power standard, but subsequent developments showed that this level of heating value required more expense and effort from the manufacturing companies than the additional heating value was worth to the consumer.

The efficiency of the utilization of gas is affected by variations in (1) heating value, (2) pressure, (3) density, (4) chemical composition. Almost all appliances are adjustable to take care of wide ranges of such variations with very little difference in the efficiency. However, it requires some skill to make these adjustments and in certain cases some expense. The only adjustment that the consumer can be expected to make is the regulation of the valve or cock on his burners, but this adjustment will take

care of only limited variations. While it is fairly definitely known how much variation is allowable for each one of the above, the other three remaining constant, research has not gone far enough to know definitely what will be the cumulative effects of variations in all of the above. It is necessary, therefore, to be somewhat more strict in limitations on these variables than future research will justify.

The trend toward interconnection of manufacturing plants has started a thorough study of these problems. Three types of gas are coming together in some of these interconnecting systems. As long as the proportions of these gases remain very nearly the same no trouble is experienced, but it is impossible to take care of fluctuating loads without causing considerable differences from day to day or even from hour to hour. Many devices are being worked out to try to reach a common level where gas made by different methods may be formed or reformed to produce a mixture that will not vary too greatly; but since almost an infinite number of combinations could be produced commercially, it is somewhat doubtful that an immediate answer will be found.

Most gas utilities are limited in the amount of variation in some of the above four properties of the gas which they distribute. Usually they are also required to maintain a certain average heating value of the gas. These requirements may be in the form of commission orders, franchise agreements, state statutes, or city ordinances. Very few are not required to deliver a certain minimum heating value, but some people maintain that this requirement is unnecessary. The argument is based on one or both of two assumptions: (1) that the usefulness of a cubic foot of gas to the consumer is not dependent on the heating value (so long as the gas contains enough combustible matter to burn!); (2) that, where the return to the company is limited, any increase in earnings above the limit, resulting from a lowering of heating values, will revert to the consumers in the form of lower rates.

It is difficult to realize the fanatical belief that some very capable technicians have in the truth of the first assumption or in some modification thereof. In one case a company reduced the heating value to about half the former level in order to increase the return, because its franchise limited the price of the gas but did not specify the heating value. It was maintained that the company profited only to the extent of a reduction in operating costs (which reduction was doubtless not great enough to be proportional to the reduction in heating value) and did not receive any additional revenue because of larger consumption by the consumers. A significant point to note is that this company completely reversed this stand when it began to distribute natural gas which was about twice as high in heating value as any of the manufactured gas which it had previously distributed.

It is outside the scope of this article to report on the controversy which resulted from a large number of similar cases. The Bureau of Standards has published very definite data on the laws of combustion which show this hypothesis to be impossible.[1] The Bureau's findings point very definitely to the fact that the thermal efficiency of commercial burners is independent of the heating value of the gas over a wide range of heating values and that the true measure of service to the consumer

[1] "Relative Usefulness of Gases of Different Heating Value and Adjustments of Burner for Changes in Heating Value and Specific Gravity," Bureau of Standards, *Technologic Paper No. 222.*

is the number of heat units which he receives and not the number of cubic feet which he uses. They have even investigated a large quantity of data which were alleged to show the opposite and have in every case amply supported their previous proof.[2]

The second premise—namely, that any adjustment in rates would automatically follow an increase in return resulting from decreasing the heating value without decreasing the rate per cubic foot—might have some basis if rate changes were automatic and instantaneous. However, rate changes are far from that, and such practice would provide an incentive for the company to adjust the heating value at a level to yield just the maximum allowable return which very likely would not be as economical as supplying gas of a heating value which could be *delivered* to the consumer at the least cost per heat unit. Lowering the heating value of the gas results in (1) a decrease in the cost of manufacture per cubic foot, although the cost per heat unit might be increased or decreased; (2) an increase in the number of cubic feet used by each consumer for given heating requirements proportional to the decrease in heating value, although the number of heat units consumed would not change; (3) an increase in the main capacity required to supply this additional demand. The second might appear not to hold true if the price per cubic foot were not reduced in proportion to the reduction in heating value, as many consumers tend to keep their bills the same from month to month. If this did not happen, one might find a company lowering the heating value from time to time and then investing more in distribution mains which would use up the additional return.

A majority of the states have a standard of heating value although a few of them have no method of inspection to guarantee that these standards will be maintained. Any standardization has certain advantages which cannot be ignored but, since gas appliances can be so readily adjusted to take care of various gases, it is no more necessary to standardize heating values than to standardize any other of the four properties of fuel gas. As a matter of fact, most of these standards are minimum standards and there is nothing to prohibit a higher heating value. One state has three different standards. Other states have a standard for manufactured gas, but natural gas of various heating values is being distributed also. Others have allowed special exemptions to some companies and all advantages of general standardization have been lost.

In deciding upon the heating value to be adopted for a state, it has been necessary to attempt to strike an average of conditions throughout that state. This leads to a possibility for large errors because economic conditions may be vastly different for the different plants. The cost of coal, oil, mains, of capital, and many other variables have a very serious effect on the economy of the heating value. Different types of plants and different types of loads would be affected differently by such variables. Only the most superficial type of investigation can be made within a limited time, as the correct procedure would require a detailed study of the operation and perhaps a valuation of each utility.

Since the heating value is the true criterion of the value of the gas to the consumer, it would seem that the logical units for sale should be heat units rather than cubic feet. This is being

[2]. E. R. Weaver, "Relation between Heating Value of Gas and Its Usefulness to the Consumer: a Critical Review of the Published Data," Bureau of Standards, *Technologic Paper No. 290.*

done in England under the Gas Regulation Act of 1920 and it is working very successfully. This Act allows certain companies to sell their gas by the "therm" which is the amount of gas which will yield 100,000 British thermal units.[3] There is some doubt whether such a system would meet with the consumer's approval in this country. Probably it would not have fared so well in England had it not originated during the period of considerable stress which followed the war when people were still accustomed to accepting what was given to them in war measures. The disadvantage of this system is that meters read in cubic feet and the meter reading must therefore be multiplied by the heating value of the gas supplied to arrive at the "therm" unit to which the rates are applied. It would be possible to make a meter read directly in "therms," but this would require a complicated alteration of the meters every time the heating value was changed and would make the changes more difficult and considerably more costly.

An alternative to the "therm" method would be to allow a utility to change its heating value with certain restrictions and within certain limits without requiring any formal action by the regulatory body provided that the rates were changed in the same proportion.[4] This would make the comparison of rates rather more complicated and would involve a change in rates per cubic foot which in many cases would be misunderstood, especially by those who could remember the time when heating values were lowered all over the country and many companies unwisely advertised that the change would make little or no difference in the consumer's bills.

[3] A British thermal unit, abbreviated B. t. u., is the amount of heat required to raise one pound of water one degree Fahrenheit in temperature.

The writer believes very strongly that the "therm" method of measuring gas service is the only correct one and is the only one that is economically sound. Many utility laws require the regulatory body to act formally on any increase in rates and, unless the law will be interpreted to allow the above alternative method, it is the only way in which the present unwieldy method can be corrected without legislative action. State-wide standards cannot be justified on any grounds of economy for the individual utilities and are only excusable because they insure a more or less desirable uniformity. They are difficult to change and by the time the changes have been generally effected an entirely different set of circumstances may have developed. The cubic foot method of measuring gas service is not a measure at all unless the heating value is specified and certainly a utility has no incentive to give any more than is required of it. Where a utility is allowed to charge by the "therm," it is naturally going to lend every effort to select a heating value that will allow it to deliver gas at the least cost per "therm" and probably in time it would be able to reduce its price because of the better economy of the selected heating value.

Superficially it is illogical to get away from state-wide standards when interconnection makes standardization all the more necessary, but state-wide standards have been shown not to result in standardization. The tremendous spread of the distribution of natural gas with twice the heating value of most manufactured gas is bound to result in many changes and the important point is that natural gas be valued for what it will do and not for how much space it occupies. If this is not done the tempta-

[4] This type of a rule was adopted by the Colorado Commission in 1927.

tion will ever be present for the utilities to go to some considerable expense to dilute natural gas to a lower heating value in order to prevent its use reducing their income. Needless to say, this practice would be a wasteful disgrace. Many processes have been developed to make a very cheap gas which cannot be used because of the heating value restrictions. If the additional investment in distribution equipment does not consume all of the savings possible by using these processes, it would be quite unfair to prohibit the more economical method.

This subject has been debated for many years, but very little progress has been made because the proposed change has been considered too radical. Certain restrictions on the frequency of changes will perhaps be necessary and certainly the responsibility of keeping consumers' appliances in adjustment will have to be placed upon the companies. Very little change either in the method of billing or in the rates would be necessary if a unit of five British "therms" were used which could be called the "American therm."[5] Since most manufactured gas is priced in units of 1,000 cubic feet and has a heating value of 500 B. t. u. per cubic foot or slightly more, the "American therm" would have a price very little different than the price per thousand cubic feet in the present rate-structures. The "American therm" could be divided into a thousand "thermal feet" wherever a smaller unit was desired. To convert a cubic feet meter reading it would be necessary merely to multiply the cubic feet readings by the "thermal factor." The "thermal factor" would be obtained by dividing the heating value standard by 500. This would resemble exactly the present system on some electric meters which do not read directly in kilowatt-hours, but read in units which must be multiplied by the meter constant. Certainly this would not require a great amount of consumer education.

The following is suggested as an example of the form of an order or rule which would allow the selling of gas on a thermal basis. This is given merely to show what reservations should be made and what consideration should be shown. It probably can be improved greatly and certainly will need adaptation for conditions in the various states.

Order; Section 1.

Each utility which is furnishing gas service shall have on file with this Commission the standard heating value which it maintains in each of the communities which it serves. This standard shall not be less than the average of the monthly average heating values for the 12 months preceding the enactment of this order. The monthly average heating value of the gas, as delivered to the consumer at any point within the community served, shall be not less than the heating value standard on file with the commission, and the heating value at any time shall not be more than 5% above or 4% below this standard. The average of all heating value tests made in one day shall be considered the daily average, and the average of all daily averages shall be considered the monthly average heating value.

Order; Section 2.

If the utility finds it more practical, economical, and efficient to render service with gas of another heating value than that on file with the Commission, the utility may file a new heating value standard, and if the conditions hereinafter stated shall have been complied with, and the Commission shall not have ruled against the change, such new heating value standard shall be put into force 30 days from the date of acknowledgment of the filing of this standard.

[5] It has been suggested that it would be better to employ "million B. t. u." as a unit rather than to introduce an entirely new term, "American therm." The million B. t. u. works in quite well with the present gas rates in the country at large, considering natural and mixed gases. It has a great advantage in that it at once gives the relation between the unit for which a charge is made and the rated consumption of a gas appliance, which is now being placed on practically every appliance sold.

(1) The utility shall charge for gas service on the thermal basis and shall have received permission from this Commission to charge for gas service on the thermal basis as provided for in Section 3 of this order.

(2) The utility shall readjust and shall repair where necessary all consumers' appliances to the extent necessary in order that the appliances shall operate as efficiently and shall give as good service as was possible before the change. This shall be done promptly and without cost to the consumer.

(3) The utility shall produce records of adjustments, pressure records, or any other data which the Commission may require as evidence that the service has not been impaired.

(4) The utility shall be prepared to justify the standard it adopts before the Commission by such pertinent facts as may be required.

Order; Section 3.

If a utility decides to charge for gas service on the thermal basis instead of on the volume basis, the utility shall file a new rate-schedule, and if the conditions hereinafter stated shall have been complied with, and the Commission shall not have ruled against the change, such new schedule shall become effective 30 days from the date of acknowledgment of the filing of this schedule.

(1) The unit of service which shall be used shall be the "American therm" which shall consist of 1,000 thermal feet. The American therm shall be the amount of gas which will yield 500,000 British thermal units of total heating value.

(2) The price of any amount of thermal feet consumption or demand shall remain the same as when charged for by the thousand cubic feet basis under the rates which are on file with the Commission. The minimum charge, service charge, or other charges, which are independent of the volume of gas used, shall not be changed under the provisions of this order.

(3) The bills which are rendered for gas service shall show the meter readings, the dates of the meter readings, and the thermal factor which is used to convert the meter readings to the thermal feet readings.

(4) Each gas meter shall have affixed firmly and prominently to it a label which shall show the thermal factor which is to be applied to the meter readings to give the thermal feet. This label shall be of the following form, "Multiply readings of meter by (here insert the thermal factor) to obtain readings in thermal feet." This label shall be at least as large as the index of the meter, and shall be as prominently displayed.

(5) All charges which the utility makes in the territory or territories where gas is being sold on the thermal basis shall be made according to the lawfully filed rates of that utility for those territories.

It is obvious that sufficient restrictions have been placed upon changes to prevent any chaotic condition following the enactment of the order. Probably only a few utilities would make changes at first, as some time would be required for them to determine what standard is most economically suited for them. Unless some savings were possible, they would not elect to change their standards and might not change to the thermal basis of selling their services. It would be inadvisable to force the utilities to adopt the thermal basis at this time. However, if the necessity did not force some utilities to it, the Commission at some future time, in order to bring about uniformity, could force the remaining utilities to this system.

With the restrictions and provisions, it would seem that the British therm law could be adapted to American practice and regulation without confusion or undue suspicion and without seeming to be a radical change. The change from a candle power standard went through the same ordeal of agitation and fear that has greeted this proposal. The change from cubic-foot basis to the thermal basis is just as necessary both to the industry and to the consumer in order that any reduction in the cost of gas service may not be hampered by an arbitrary restriction and the heating value standard may be sifted to its proper economical level.

HOW MICHIGAN HANDLES ITS STATE OWNED LANDS*

By WADE DE VRIES

FROM time to time since the State of Michigan was admitted to the Union it has received grants of land from the Federal Government. In some cases the entire grant was immediately turned over to private parties to reimburse them for constructing internal improvements, such as the ship canal around the rapids of St. Mary's River or building a railroad from the Marquette iron range to the Straits of Mackinac. In other cases the grant was made to the State, which in turn handled the sale or disposition of the lands, such as primary school, and agricultural college and university lands, for the benefit of institutions of learning. Some 6,000,000 acres of swamp lands were granted to the State, which disposed of them by sale for cash; by homesteading; by appropriation for the construction of roads, drains, etc.; and by grants to railroads. In 1890 the area of lands granted by the Federal Government and still held by the State amounted to 537,040 acres. During the years prior to 1890 the policy of the State was to get all land into private ownership as soon as possible, in order to develop speedily the natural resources of the State, and to get the country populated and the land on the tax roll to aid in the support of the local government. Prior to 1893 the law also provided that all delinquent State Tax lands were to be offered for sale every year by the various county treasurers.

During the past 35 years three major policies in the disposition and administration of State lands have been successively dominant: first, homestead entry; then, sales; and the third and current policy of consolidation and administration for conservation purposes.

The Period of Homestead Entry

The years 1893 to 1896 were ones of great depression in industry and in agriculture. Tax delinquency assumed large proportions and a great deal of sentiment was aroused in favor of a plan for the State to provide homes for the great numbers of worthy people who had no jobs and who were often dependent on the town or county for support. The Legislature of 1893 provided for the deeding of lands delinquent for the taxes of five or more years to the State, which in turn was to grant these lands to individuals as homesteads. The requirements and procedure regarding these "tax homesteads" were copied from the old State Swamp Homestead Act of 1859. Five years' continuous residence and the cutting of no timber except to clear land for actual cultivation were the principal requirements before receiving final deed. Because of legal difficulties and adverse court decisions the first deeding of tax homestead lands to the

* Over 98% of Michigan's State lands are tax homestead lands. The Michigan laws provide that all lands which are delinquent for the taxes of any five different years and in fact abandoned are deeded to the State by the Auditor-General of the State and the title thereby becomes absolute in the State as against any former private owner. These lands were by the law, as first enacted, intended to be given to actual settlers as homesteads, hence the term "tax homestead." Later the granting of homesteads has become of very minor importance in the administration of these lands (as developed in the text below) and the term "tax homestead lands" means simply that class of State owned lands which has come into State ownership through tax delinquency.

State by the Auditor-General did not take place until 1896, when 211,823 acres in 22 counties were transferred. In this first year of the actual operation of the law, 40,125 acres were taken up as homesteads.

The purpose and benefit to be derived from this law is stated by the Commissioner of the Land Office in 1895 as follows:

"The benefits to those who avail themselves of the privilege thus accorded by the State of securing a home for themselves and their families will more than repay the State in an increased population of honest, thrifty and prosperous husbandry, and settling with an industrious community the thousands of acres of waste and barren lands."[1]

By 1898 it was evident that the tax homestead laws did not solve all idle land evils. By that year 6,136 acres of homesteaded land had already been forfeited to the State because of non-compliance with the provisions of the homestead law, and in the following year 13,846 acres of homesteads were forfeited. In 1898 the Commissioner of the Land Office said of the homestead law that:

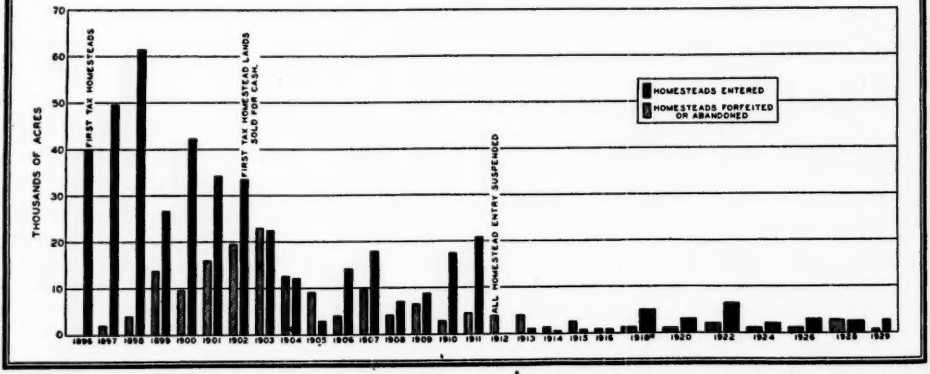
"Some of the lands that come within its provisions can be made into good farms by hard work and perseverance and are rapidly being settled upon by men not afraid of work and privation and who would be willing to bear their share of the public burdens. On the other hand it cannot be denied that some of the land is absolutely worthless and will always remain so. If the owner refuses to pay taxes upon such lands there is nothing made in assessing it year after year, and the State should assume the title and the land exempted from taxation."

This statement, not so enthusiastic as the one two years earlier, seems to be the first official expression of the idea that some of our land cannot and should not be kept in private ownership and on the tax roll. Although this idea has grown and intensified with the years since 1898, and the justification for it has become increasingly clear, nevertheless the granting of homesteads on tax abandoned lands has continued up to the present time. Chart I shows the acreage entered as homesteads and the acreage of homesteads forfeited since the tax

[1] All quotations are from the *Annual Reports* of the Commissioner of the Land Office, unless otherwise indicated.

CHART I

ACREAGE OF TAX HOMESTEADS ENTERED AND ACREAGE FORFEITED OR ABANDONED



* Beginning with 1918 the bars are of double width because from this time on the data are reported biennially instead of annually.

homestead law has been in effect. In the year 1911 all homestead entry was suspended. Since 1913 homesteads have again been granted, but only upon the special approval of individual applications. In the past 32 years, for which figures are available from the *Annual Reports* of the land office, 37% of the homesteaded lands have been forfeited for one of three reasons: (1) the homestead was not taken in good faith and, the timber having been removed, the land was again allowed to revert; (2) the land proved to be unsuited to farm development and was therefore abandoned; or (3) the homestead certificate was surrendered and land purchased outright. In all such cases the purpose of the homestead law was not fulfilled.

In spite of the change in the policy regarding all homesteads in 1913, the law has failed of its purpose in 61% of all homesteads granted by the State in the last 16 years. Since 1913 Gladwin, Montmorency, and Ogemaw Counties have lead in number of acres deeded to homesteaders after the completion of the five-year residence requirement. Of the 13,120 acres not forfeited but actually deeded to homesteaders in these counties, 27% have subsequently reverted again to the State because of being tax delinquent for five or more years.

The principal reason for this failure of the tax homestead law, as is now generally realized, is the presence of such a large acreage of land in the State which is not suited to agricultural development. This fact was not realized in 1893, and perhaps was not generally conceded until after the big slump in agricultural values which developed about 1920.

At the present time the policy of the Department of Conservation, which is now charged with the duties formerly performed by the Commissioner of the Land Office, is to grant homesteads only on land examined and found to be fairly well suited to agricultural development, but this condition has been found to be rare indeed on tax homestead lands today. During the past six months, out of 42 presumably bona fide homestead applications 37 were rejected because the examiners' reports indicated that the land was not agricultural in character, and only 5 were granted.

Sale of State Lands

During the years 1898 to 1900 many kinds of timber which previously had little or no market value quickly came into demand; State lands were becoming valuable for other than agricultural uses, and a demand arose that tax homestead lands be offered for sale. The Legislature of 1901 provided that these lands might be either homesteaded or sold outright, as the Auditor-General and Commissioner of the Land Office might deem expedient, for, as was said even at that early date, "some tracts are of little value for farming purposes." In 1902 the first state tax homestead land was sold; 12,857 acres were disposed of at an average price of 32 cents per acre. In Montmorency and Alpena Counties, where the bulk of the land was sold, the average price was 25 cents per acre. In the next year (1903) the Auditor-General deeded to the State over 450,000 acres. Land sales mounted rapidly in volume and homestead applications began to decline. Since 1903 tax homestead lands have constituted the bulk of all State-owned land, and today 98.7% of the State lands are of this origin or class.

Land sales continued to increase rapidly. In 1906 and again in 1907 over 230,000 acres were sold. During the period from 1904 to 1908 inclusive the area sold outright amounted to nearly

1,000,000 acres, or 17 times the acreage which had been entered as homesteads.

In 1907 a legislative "Commission of Inquiry, Tax Lands and Forestry" was created, and made its report the following year. The report assembles an array of pertinent facts concerning the evil effects resulting from the purchase of State lands for speculative purposes.

"This land has been bought in some instances as low as fifty cents an acre. Many sales have been made by these speculators to clerks, stenographers and working people of Chicago and elsewhere, and to others, on time, at prices running as high as twelve and fifteen dollars and even twenty dollars an acre. The business has been sufficiently ex-

volume basis, the utility shall file a new rate-schedule, and if the conditions hereinafter stated shall have been complied with, and the Commission shall not have ruled against the change, such new schedule shall become effective 30 days from the date of acknowledgment of the filing of this schedule.

(1) The unit of service which shall be used shall be the "American therm" which shall consist of 1,000 thermal feet. The American therm shall be the amount of gas which will yield 500,000 British thermal units of total heating value.

(2) The price of any amount of thermal feet consumption or demand shall remain the same as when charged for by the thousand cubic feet basis under the rates which are on file with the Commission. The minimum charge, service charge, or other charges, which are independent of the volume of gas used, shall not be changed under the provisions of this order.

(3) The bills which are rendered for gas service shall show the meter readings, the dates of the meter readings, and the thermal factor which is used to convert the meter readings to the thermal feet readings.

(4) Each gas meter shall have affixed firmly and prominently to it a label which shall show the thermal factor which is to be applied to the meter readings to give the

acre, or about $9,000,000 in five or six years. Largely as a result of this legislative inquiry, the Public Domain Commission was established in 1909 and was given jurisdiction over the administration of State lands. This Commission was superseded by the Department of Conservation in 1921.

In 1912 the Public Domain Commission raised the minimum price of State owned lands to $2 per acre, for, in the words of the Commissioner of the State Land Office, "as these lands are offered in competition to the sale of private holdings throughout the State, their full value should be obtained so as not to

and might not change to the thermal basis of selling their services. It would be inadvisable to force the utilities to adopt the thermal basis at this time. However, if the necessity did not force some utilities to it, the Commission at some future time, in order to bring about uniformity, could force the remaining utilities to this system.

With the restrictions and provisions, it would seem that the British therm law could be adapted to American practice and regulation without confusion or undue suspicion and without seeming to be a radical change. The change from a candle power standard went through the same ordeal of agitation and fear that has greeted this proposal. The change from cubic-foot basis to the thermal basis is just as necessary both to the industry and to the consumer in order that any reduction in the cost of gas service may not be hampered by an arbitrary restriction and the heating value standard may be sifted to its proper economical level.

of great agricultural development. Through the Public Domain Commission the State maintained an immigration bureau, with a branch office in New York City, which encouraged immigrants to come to Michigan and even attempted to advertise in foreign countries. With the perspective of 1930 this period of "agricultural development" appears for the most part to have been an unwarranted speculation and exploitation of "colonies" in sandy cut-over lands. That the State might not continue to be a party to such questionable colonization activity in northern Michigan was a third reason for the withdrawal of all

as primary school, and agricultural college and university lands, for the benefit of institutions of learning. Some 6,000,000 acres of swamp lands were granted to the State, which disposed of them by sale for cash; by homesteading; by appropriation for the construction of roads, drains, etc.; and by grants to railroads. In 1890 the area of lands granted by the Federal Government and still held by the State amounted to 537,040 acres. During the years prior to 1890 the policy of the State was to get all land into private ownership as soon as possible, in order to develop speedily the natural resources of the State, and to get the country populated and the land on the tax roll to aid in the support of the local government. Prior to 1893 the law also provided that all delinquent State Tax

being advertised for five successive weeks in the newspapers of four counties. At the sale competitive bids were made on only two small parcels, both of which had desirable lake frontage. All of these particular lands were finally sold to the Federal Government for the purpose of expanding new national forest units.

During the calendar years 1927 and 1928, 8,787 acres were advertised and offered for sale. About 56% of this acreage was offered as the result of individual applications to purchase, and yet only 37% of the lands so offered were actually sold. Evidently there is little real demand for the bulk of our State lands,

large proportions and a great deal of sentiment was aroused in favor of a plan for the State to provide homes for the great numbers of worthy people who had no jobs and who were often dependent on the town or county for support. The Legislature of 1893 provided for the deeding of lands delinquent for the taxes of five or more years to the State, which in turn was to grant these lands to individuals as homesteads. The requirements and procedure regarding these "tax homesteads" were copied from the old State Swamp Homestead Act of 1859. Five years' continuous residence and the cutting of no timber except to clear land for actual cultivation were the principal requirements before receiving final deed. Because of legal difficulties and adverse court decisions the first deeding of tax homestead lands to the

* Over 98% of Michigan's State lands are tax homestead lands. The Michigan laws provide that all lands which are delinquent for the taxes of any five different years and in fact abandoned are deeded to the State by the Auditor-General of the State and the title thereby becomes absolute in the State as against any former private owner. These lands were by the law, as first enacted, intended to be given to actual settlers as homesteads, hence the term "tax homestead." Later the granting of homesteads has become of very minor importance in the administration of these lands (as developed in the text below) and the term "tax homestead lands" means simply that class of State owned lands which has come into State ownership through tax delinquency.

State by the Auditor-General did not take place until 1896, when 211,823 acres in 22 counties were transferred. In this first year of the actual operation of the law, 40,125 acres were taken up as homesteads.

The purpose and benefit to be derived from this law is stated by the Commissioner of the Land Office in 1895 as follows:

"The benefits to those who avail themselves of the privilege thus accorded by the State of securing a home for themselves and their families will more than repay the State in an increased population of honest, thrifty and prosperous husbandry, and settling with an industrious community the thousands of acres of waste and barren lands."[1]

By 1898 it was evident that the tax homestead laws did not solve all idle land evils. By that year 6,136 acres of homesteaded land had already been forfeited to the State because of non-compliance with the provisions of the homestead law, and in the following year 13,846 acres of homesteads were forfeited. In 1898 the Commissioner of the Land Office said of the homestead law that:

"Some of the lands that come within its provisions can be made into good farms by hard work and perseverance and are rapidly being settled upon by men not afraid of work and privation and who would be willing to bear their share of the public burdens. On the other hand it cannot be denied that some of the land is absolutely worthless and will always remain so. If the owner refuses to pay taxes upon such lands there is nothing made in assessing it year after year, and the State should assume the title and the land exempted from taxation."

This statement, not so enthusiastic as the one two years earlier, seems to be the first official expression of the idea that some of our land cannot and should not be kept in private ownership and on the tax roll. Although this idea has grown and intensified with the years since 1898, and the justification for it has become increasingly clear, nevertheless the granting of homesteads on tax abandoned lands has continued up to the present time. Chart I shows the acreage entered as homesteads and the acreage of homesteads forfeited since the tax

[1] All quotations are from the *Annual Reports* of the Commissioner of the Land Office, unless otherwise indicated.

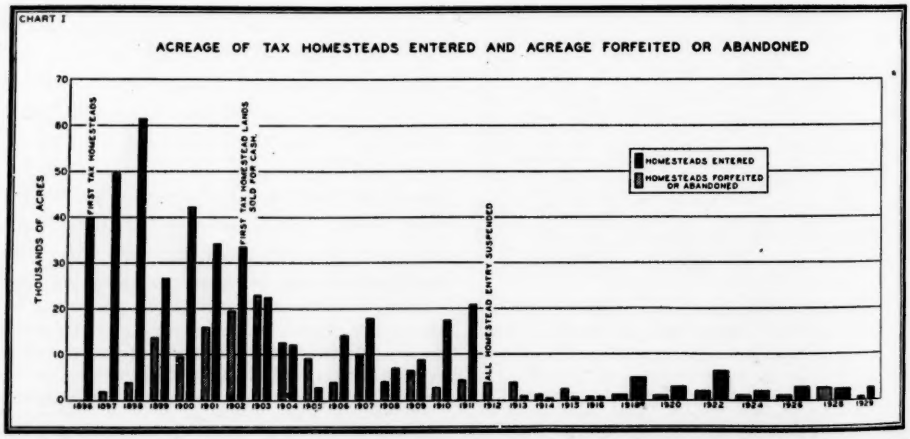


CHART I
ACREAGE OF TAX HOMESTEADS ENTERED AND ACREAGE FORFEITED OR ABANDONED
THOUSANDS OF ACRES
70
60
50
40
30
20
10
0
FIRST TAX HOMESTEADS
FIRST TAX HOMESTEAD LANDS SOLD FOR CASH
ALL HOMESTEAD ENTRY SUSPENDED
HOMESTEADS ENTERED
HOMESTEADS FORFEITED OR ABANDONED
1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1918* 1920 1922 1924 1926 1928 1929

* Beginning with 1918 the bars are of double width because from this time on the data are reported biennially instead of annually.

homestead law has been in effect. In the year 1911 all homestead entry was suspended. Since 1913 homesteads have again been granted, but only upon the special approval of individual applications. In the past 32 years, for which figures are available from the *Annual Reports* of the land office, 37% of the homesteaded lands have been forfeited for one of three reasons: (1) the homestead was not taken in good faith and, the timber having been removed, the land was again allowed to revert; (2) the land proved to be unsuited to farm development and was therefore abandoned; or (3) the homestead certificate was surrendered and land purchased outright. In all such cases the purpose of the homestead law was not fulfilled.

In spite of the change in the policy regarding all homesteads in 1913, the law has failed of its purpose in 61% of all homesteads granted by the State in the last 16 years. Since 1913 Gladwin, Montmorency, and Ogemaw Counties have lead in number of acres deeded to homesteaders after the completion of the five-year residence requirement. Of the 13,120 acres not forfeited but actually deeded to homesteaders in these counties, 27% have subsequently reverted again to the State because of being tax delinquent for five or more years.

The principal reason for this failure of the tax homestead law, as is now generally realized, is the presence of such a large acreage of land in the State which is not suited to agricultural development. This fact was not realized in 1893, and perhaps was not generally conceded until after the big slump in agricultural values which developed about 1920.

At the present time the policy of the Department of Conservation, which is now charged with the duties formerly performed by the Commissioner of the Land Office, is to grant homesteads only on land examined and found to be fairly well suited to agricultural development, but this condition has been found to be rare indeed on tax homestead lands today. During the past six months, out of 42 presumably bona fide homestead applications 37 were rejected because the examiners' reports indicated that the land was not agricultural in character, and only 5 were granted.

Sale of State Lands

During the years 1898 to 1900 many kinds of timber which previously had little or no market value quickly came into demand; State lands were becoming valuable for other than agricultural uses, and a demand arose that tax homestead lands be offered for sale. The Legislature of 1901 provided that these lands might be either homesteaded or sold outright, as the Auditor-General and Commissioner of the Land Office might deem expedient, for, as was said even at that early date, "some tracts are of little value for farming purposes." In 1902 the first state tax homestead land was sold; 12,857 acres were disposed of at an average price of 32 cents per acre. In Montmorency and Alpena Counties, where the bulk of the land was sold, the average price was 25 cents per acre. In the next year (1903) the Auditor-General deeded to the State over 450,000 acres. Land sales mounted rapidly in volume and homestead applications began to decline. Since 1903 tax homestead lands have constituted the bulk of all State-owned land, and today 98.7% of the State lands are of this origin or class.

Land sales continued to increase rapidly. In 1906 and again in 1907 over 230,000 acres were sold. During the period from 1904 to 1908 inclusive the area sold outright amounted to nearly

1,000,000 acres, or 17 times the acreage which had been entered as homesteads.

In 1907 a legislative "Commission of Inquiry, Tax Lands and Forestry" was created, and made its report the following year. The report assembles an array of pertinent facts concerning the evil effects resulting from the purchase of State lands for speculative purposes.

"This land has been bought in some instances as low as fifty cents an acre. Many sales have been made by these speculators to clerks, stenographers and working people of Chicago and elsewhere, and to others, on time, at prices running as high as twelve and fifteen dollars and even twenty dollars an acre. The business has been sufficiently extensive and remunerative to justify extensive, full-page advertising in Chicago and Detroit daily papers, Sunday editions, as well as to bear the expense of circulating advertising pamphlets. It is a fair inference therefrom that land good for farming and home making is worth very much more than the meagre price which the State has received for its tax homestead lands; and that any of the forfeited tax land that is fit for agricultural purposes will be cheap at a price which will net the State several times the average price it has heretofore realized, and which will, at the same time, enable those who wish to settle upon the land to acquire title at less than the cost of purchase from these speculators."

The following illustrates the type of advertising used by speculators to sell lands which had been purchased from the State at $1 or less per acre:

"Roscommon County will grow more and better wheat, oats, rye, speltz, timothy hay, clover seed, beans, field peas, potatoes, cabbages, sugar beets, turnips and rutabagas to the acre than any other County in the State or in Illinois, Indiana, or Ohio. Our land will pay double the value per acre that the average high priced land of Illinois, Indiana, and Ohio does."

This inquiry further indicated that the average loss to the State because of inadequate appraisals of State lands had amounted to an average of $10.20 per acre, or about $9,000,000 in five or six years. Largely as a result of this legislative inquiry, the Public Domain Commission was established in 1909 and was given jurisdiction over the administration of State lands. This Commission was superseded by the Department of Conservation in 1921.

In 1912 the Public Domain Commission raised the minimum price of State owned lands to $2 per acre, for, in the words of the Commissioner of the State Land Office, "as these lands are offered in competition to the sale of private holdings throughout the State, their full value should be obtained so as not to depreciate the value of other lands of like character."

Exchange and Sale

In 1911 another method of disposing of State lands was authorized, that is, by exchange of State lands in return for Federal Government or private lands, the acquisition of which would serve to consolidate the State Forests and other conservation projects. This has come to be the principal method of disposing of State lands at the present time.

In January, 1913, the Public Domain Commission fixed a minimum price of $6 per acre on all tax homestead lands, and withdrew them from the market. Two reasons were given for this action: (1) to make the few remaining lands available for exchange in furthering the consolidation of the State Forest Reserves and at a price which might not be too low in comparison with lands received in exchanges; and (2) to fix a higher standard of land values in the State, and thus to discourage speculation in cheap land, which was giving the State a bad reputation among its neighbors.

For the few years prior to 1913 Michigan was said to be undergoing a period

of great agricultural development. Through the Public Domain Commission the State maintained an immigration bureau, with a branch office in New York City, which encouraged immigrants to come to Michigan and even attempted to advertise in foreign countries. With the perspective of 1930 this period of "agricultural development" appears for the most part to have been an unwarranted speculation and exploitation of "colonies" in sandy cut-over lands. That the State might not continue to be a party to such questionable colonization activity in northern Michigan was a third reason for the withdrawal of all lands from sale in 1913.

From 1914 to 1928 inclusive land sales have averaged about 1,000 acres per year and over 10% of the lands so sold have again reverted to the State. During this same period 41,440 acres, or an average of 2,750 acres per year, were deeded to individuals in connection with a land exchange and 10% of these lands have again reverted to the State. An additional 30,570 acres have been deeded to the Federal Government through such exchanges to aid in consolidating the national forest units.

In the fiscal year 1929 the amount sold increased to 4,000 acres, and many exchanges involving a large acreage are now pending. With a greatly increased area coming under State control, a larger acreage may be offered for sale. But aside from this, there seems to be an increasing demand for the choicest State lands and an increasing demand upon the Conservation Department to put State lands on the market, in order that they may be restored to the tax rolls and contribute to the support of the local government.

Very recently 21,000 acres located in four Upper Peninsula counties were offered for sale at public auction, after being advertised for five successive weeks in the newspapers of four counties. At the sale competitive bids were made on only two small parcels, both of which had desirable lake frontage. All of these particular lands were finally sold to the Federal Government for the purpose of expanding new national forest units.

During the calendar years 1927 and 1928, 8,787 acres were advertised and offered for sale. About 56% of this acreage was offered as the result of individual applications to purchase, and yet only 37% of the lands so offered were actually sold. Evidently there is little real demand for the bulk of our State lands, except for those parcels which, because of water frontage or location with relation to public or private game preserves or parks, are valuable for recreational or speculative purposes. As a rule these descriptions are also very desirable as additions to the State's projects for furnishing to the people of the State permanent recreational facilities, in which case it is the policy of the Conservation Department not to sell them.

The Conservation Movement

Since the beginning of the present century the policy of dedicating and holding large areas of land for public conservation purposes has had a rapid growth throughout the nation. The Legislature of 1899 provided for the creation of a Forestry Commission and, on authority of that Legislature, 47,308 acres of tax homestead land and 5,238 acres of (federal grant) swamp land were withdrawn from sale and homestead entry and set up as the Houghton Lake and Higgins Lake Forest Reserves (later to be known as "State Forests").

By 1907 the idea of holding some lands in State ownership had developed somewhat and the Legislature directed the withdrawal from sale of all agricultural

college lands in Alcona and Iosco Counties, amounting to 42,612 acres, for the purpose of establishing another forest reserve. The lands were withdrawn as directed, but were never administered as such by the State because a legal question arose as to the right of the College or State to use these lands except for the support of the College. In 1927 these lands were sold to the United States for the Forest Service and are now owned and administered as a part of the Huron National Forest.

The Constitution of Michigan of 1850 had prohibited the State from engaging in works of internal improvement, except public wagon roads, but in the Constitution of 1908, which superseded it, a provision was inserted that the State may also engage "in the reforestation and protection of lands owned by the State." In 1920, shortly after the organization of the Public Domain Commission, a State Forester was appointed and a total of 231,350 acres was designated as Forest Reserves.

"These lands were selected mostly in large contiguous tracts, but smaller parcels were taken in as many counties as possible, with the intention to use them at some future time for demonstrating the best woodlot practice throughout the State." These "Reserves" were added to from time to time until, on January 1, 1928, about 354,000 acres of tax homestead lands were in such State Forests, and much the larger part under actual administration.

After the State Forests had been under administration for a number of years and through fire protection and planting were coming to be a decided asset to the State, some doubt still existed as to the tax equity of the county, township, and school district in these lands which had been set aside for forests, parks, and game refuges. Fear was expressed that the small political subdivisions might some time force the sale of a choice parcel of land within a forest or park. To guard against such a contingency, the Legislature of 1927 provided that any tax homestead lands may be withheld from sale if wanted for State Forests, State Parks, State Game Refuges, public hunting or recreational grounds; and provided for the payment of 25 cents per acre from the General Fund of the State to the county on all lands so withheld, upon which the title to such land shall be absolute in the State, as against county, township, and school district. Up to January 1st, 1930, 29% of the tax homestead lands have been so dedicated and withheld as follows: for forests, 433,322 acres; parks, 5,919 acres; game refuges and public hunting grounds 11,626 acres; total, 450,867 acres. The remaining 71% of the tax homestead lands are not now appraised and placed on the wholesale market as formerly, but are put up for public sale only upon the approval of individual applications to purchase.

In certain districts considerable areas of land are already in State ownership and still more land is several years behind in its taxes but these areas are not yet sufficiently consolidated to justify specific dedication and development for forests, game refuges, etc. State lands within these districts are temporarily withheld from sale, until it becomes clear what acreage is due to come, shortly, into State control, and whether or no the areas will be well enough blocked and of sufficient acreage and appropriate character and condition to justify establishment of a new State project. Often isolated tracts of unadministered State lands offer desirable camp sites on lakes or streams in rather out of the way places. Other parcels are found to give access to good fishing

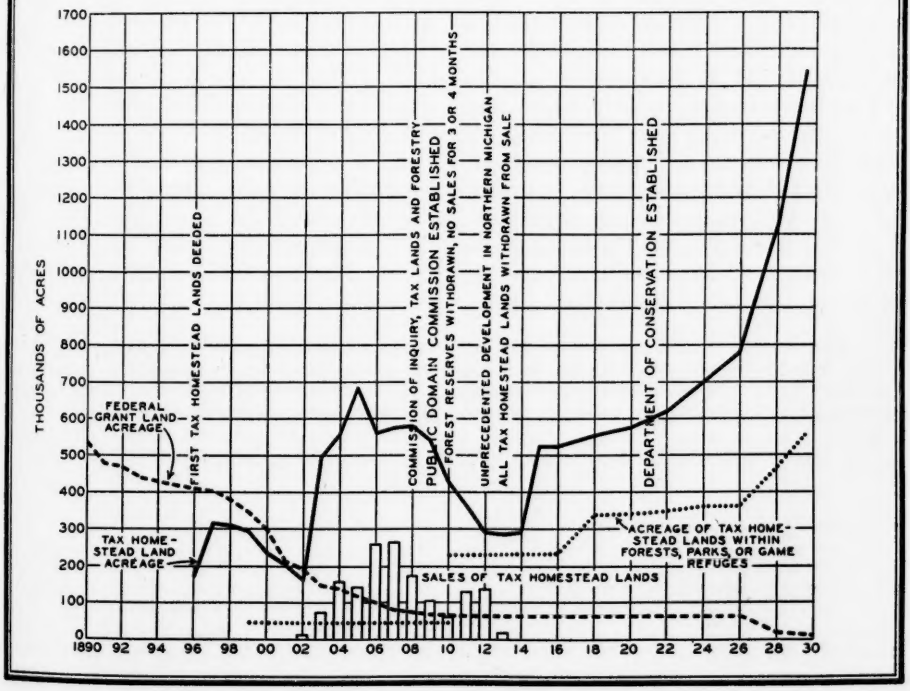
waters. For the past 10 years or more the general policy has been not to put such State lands on the market, in order that Michigan's beautiful lakes and streams may never be entirely bounded by no-trespassing signs, but rather available, as far as possible, to the public.

When the Public Domain Commission was created and the minimum price of State lands fixed at $6 per acre and land exchanges were provided for, the expectation was that presently a Commissioner of the State Land Office would no longer be needed, because practically all State land not then in forest reserves would soon be exchanged for land within the reserves. Since that time a total of 102,474 acres has been acquired from the government and from individuals in exchange for tax homestead lands. This land has served to round out and consolidate areas within State projects. Because of the comparatively prosperous conditions prevailing in the northern part of the State from 1910 to 1913, the deedings of delinquent lands by the Auditor-General were rapidly diminishing. In 1914 the final paragraph of the last report of the last Commissioner of the Land Office was as follows:

"I wish to say that the office has performed its functions and outlived its usefulness. The small amount of land which now remains the property of the State should be used for the benefit of the people of the State as a whole and should not pass into the hands of private individuals. The lands remaining the property of the State are among the poorest within its boundaries, but are suit-

CHART II

HISTORY OF STATE OWNERSHIP OF TAX HOMESTEAD LAND



able for the growing of forests and for game refuges. In addition, they can be used as camping grounds, where people from the cities can spend a month or so during the summer enjoying the out-of-door life and studying nature."

Summary

The Commissioner's wish or prophecy has been fulfilled as to uses to which State lands have been put, but he failed to see the large increase which was to take place in the acreage of such lands. In the following 15 years the area of tax homestead land tripled and the tax delinquency problem is now more acute than ever. For the last 10 years the acreage of tax homestead land held by the State has been growing at an increased rate (Chart II).

The real effect of the agricultural depression beginning in 1920 was not made evident in the increased reversion of land to the State until 1927, five or more years after 1920 when the increase in delinquency first took place. In 1927 the acreage deeded to the State was twice the amount deeded in any year since 1910. At the same time the Conservation Department embarked upon the new policy of asking the Auditor-General for early deedings of lands within the State Forests and Game Preserves which were delinquent for a sufficient number of years. This policy has probably accelerated the increase of State owned acreage to some extent. Since 1926 the area of State land has doubled, and now amounts to about 1,600,000 acres. The current delinqency records now compiled, which cover 21 counties, show an area probably subject to deeding to the State equal to over 37% of the present State acreage in those counties. It appears certain that tax homestead lands will soon mount to over 2,000,000 acres.

The work of the Michigan Land Economic Survey, which was started in 1922 and which now has covered 11 counties, shows in detail what has been happening in Northern Michigan in the use and abandonment of lands, and explains the marked increase in State land ownership. This detailed survey is being made use of constantly in the administration of State lands in these counties.

With the decline of the lumber industry and the increased efficiency in the agricultural use of the better farm lands of the nation, private individuals have been unable to cope with the idle land situation in northern Michigan. Through the gradual working of our tax law, the State is being charged with the duty of administering these lands, and it needs the best scientific advice and interest in the development of policies regarding the disposal and use of lands which come under State control.[2]

[2] This paper covers but one phase of Michigan's land policy. Some of the other phases of policy regarding State owned lands, to be covered in subsequent papers, relate to land acquisition by gift, purchase or condemnation; the administration of St. Clair Flats, the Great Lake bottoms, relicted lands, swamp lands, and primary school lands; and the leasing of lands for the removal of limestone, sand and gravel, and oil and gas.

LEGAL VERSUS ECONOMIC PRINCIPLES IN UTILITY VALUATION

By D. F. PEGRUM

IN spite of legislation, court decisions, and voluminous discussion which have centered around problems of rate-regulation for nearly 20 years, the solution of the controversy seems as far distant now as ever. This appears to be attributable to two major causes: (1) the gigantic nature of the task involved; and (2) the confusion of thought which is the result to some extent of the first difficulty. Most of the literature on the subject has dealt with the problem of the correct rate-base to be used, without discussing the validity, from the economic point of view, of the price-theory underlying such an approach. Consequently, the dispute has revolved primarily around so-called "fair-value." This in turn is the result, in part at least, of a confusion of the judicial concept of confiscation and the economic question of adequate rates.

The present paper is an endeavor to clear the ground by bringing together various aspects of the problem, examining them briefly from the standpoint of price-theory, and pointing out what the writer considers some fundamental points to be kept in mind in a discussion of the regulation of public utility rates. No attempt is made here to present a systematic development of the theory of price-fixing by governmental authority.

I. The Problem of the Rate-Base

Analysis of the rate decisions of courts and commissions alike reveals two main theories as to the rate-base: (1) reasonable investment, and (2) cost of reproduction of the plant used and useful in the public service. To date no agreement has been reached by the authorities as to which of these theories ought to be used. Most state commissions have adopted reasonable investment or estimated historical cost;[1] the Interstate Commerce Commission has adhered to cost of reproduction at 1914 unit-prices with a calculation of additions since that time at actual cost, the apparent object being to obtain original investment or historical cost.[2]

Cost of Reproduction. The Supreme Court of the United States, on the other hand, has followed in recent years a line of reasoning which lends strong support to the belief that it is upholding the cost of reproduction theory, essentially at current prices. In the Southwestern Bell Telephone case the Court said:

"It is impossible to ascertain what will amount to a fair return upon properties devoted to public service without giving consideration to the cost of labor, supplies, etc., at the time the investigation is made. An honest and intelligent forecast of probable future values made upon a view of all

[1] See 1 Cal. R. C. R. 11; 2 Cal. R. C. R. 300; 3 Cal. R. C. R. 228; 18 Cal. R. C. R. 818, etc.; *P. S. Com. of Washington v. Spokane Falls Gas Light Co.*, P. U. R. 1921 C 519; see also dissenting opinion of Mr. Justice Brandeis for review of actions of commissions in *State ex rel. Southwestern Bell Telephone Co. v. Pub. Serv. Com. of Mo.*, 262 U. S. 276 (1923).

[2] See J. C. Bonbright, "Railroad Valuation With Special Reference to the O'Fallon Decision," 18 *Papers and Proceedings of American Economic Association* 181 (1928); see also *Florida East Coast Ry. Co. and East Coast Terminal Co.*, 84 I. C. C. 24; *St. Louis and O'Fallon Ry. Co.*, 124 I. C. C. 3 (1927). The valuation method used by the I. C. C. has been called the "split-inventory" method.

the relevant circumstances is essential." (*Supra* n. 1.)

Three years later came the Indianapolis Water case which has surpassed in importance the Southwestern Bell case because the language is much more definitive, and because of the interpretation placed on it by the lower courts and by the utility commissions. The following quotations indicate the stand of the majority of the Court. Public utility rates must yield:

"A reasonable rate of return on the value of the property at the time of the investigation and for a reasonable time in the immediate future.

"It is true that, if the tendency or trend of prices is not definitely upward or downward and it does not appear probable that there will be a substantial change of prices, then the present value of land plus the present cost of constructing the plant, less depreciation, if any, is a fair measure of the value of the physical elements of the property.

"And it is clear that a level of prices higher than the average prevailing in the ten years ending with 1923 should be taken as the measure of value of the structural elements on and following the effective date of the rate order complained of."[3]

These quotations cannot be cited as positive proof that the highest court of the land requires the rate-base to be determined by the cost-of-reproduction method only, for the Court has studiously avoided declaring just how much weight should be given to cost of reproduction, or the exact price factors which are to be used. But the language of the Court is significant and the strong dissenting opinions written by Mr. Justice Brandeis, subscribed by to Mr. Justice Holmes, indicate that they believe that the majority upholds the cost-of-reproduction theory. The Supreme Court of Wisconsin certainly has taken this interpretation, for in *Waukesha Gas and Electric* v. *The Railroad Commission of Wisconsin* it said:

"A valuation which does not as to the tangible property substantially reflect the then cost of reproduction less depreciation does not meet the requirements. The utility is entitled to the present fair value of its property as a basis for rate-making."[4]

Moreover, the language of the Supreme Court of the United States in the recent Baltimore Street Railway case gives further evidence of the Court's preference for current cost of reproduction. In the part of the opinion which dealt with the problem of depreciation the Court said:

"The allowance for annual depreciation made by the commission was based upon cost. The court of appeals held that this was erroneous and that it should have been based upon *present value*. The court's view of the matter was plainly right. One of the items of expense to be ascertained and deducted is the amount necessary to *restore* property worn out or impaired, so as continuously to maintain it as nearly as practicable at the same level of efficiency for the public service.

"The amount set aside periodically for this purpose is the so-called depreciation allowance. Manifestly, this allowance cannot be limited by the original cost, because, if values have advanced, the allowance is not sufficient to maintain the level of efficiency. The utility 'is entitled to see that from earnings the value of the property invested is kept unimpaired so that at the end of any given term of years the original investment

[3] See *McCardle et al. v. Indianapolis Water Co.*, 272 U. S. 400 (1926); *State of Missouri ex rel. Southwestern Bell Tel. Co. v. Pub. Serv. Com. of Mo. et al., supra* n. 1. See also dissenting opinion in Southwestern Bell case. The St. Louis and O'Fallon case, decided by the Supreme Court on May 20, 1929, did not fundamentally alter this situation, although on the surface the railroads won. The Court stated that the I. C. C. has not considered all elements of value for recapture purposes, but the Court avoided the issue of cost of reproduction versus original cost and did not decide what constitutes a fair return from the legal point of view. *St. Louis and O'Fallon Ry. Co. et al., v. United States*, 279 U. S. 461 (1929). See also dissenting opinion of Mr. Justice Brandeis.

[4] 191 Wis. 565 (1927).

remains as it was at the beginning.' (*Knoxville* v. *Water Co.*, 212 U. S. 1, 13-14 (1909)."

"*This naturally calls for expenditures equal to the cost of the worn out equipment at the time of replacement; and this for all practical purposes means present value. It is the settled rule of this court that the rate base is present value*, and it would be wholly illogical to adopt a different rule for depreciation."[5] (Author's italics.)

The question of valuation was not an issue in the case at bar, but obviously, in spite of inconsistent theories in the opinion itself, by present value the court meant cost of replacement. It thus seems quite evident that the Supreme Court is upholding the theory of cost of reproduction, under present conditions, and substantially at current prices.[6]

The utility corporations have naturally fought for this standard; for, even though they have admitted that they cannot get a fair return on such a rate-base except in a few cases, yet it gives them a much stronger position before the law and in the eyes of the public.[7] If they are able to show that they are not earning a fair return as defined by law, there will be less likelihood of opposition to the rates charged. Moreover, in the case of railroads, it virtually renders the recapture clause inoperative.

Thus it is quite evident that a decided lack of unanimity of opinion obtains as to what the rate-base should be. This in itself offers a serious obstacle to the use of the valuation theory in rate-making. But it is not the most serious one.

The artificiality of the reproduction basis, as the term is generally used, has been discussed so thoroughly and so often that little need be said about it here.[8] It is a pure fiction, bearing no relation whatsoever to reality, regardless of the unit prices that may be used. It is so unstable that, if adopted, a new valuation would be required, not only with each change in the general price-level, but also with changes in the individual prices of all materials used in construction, as well as with the varying costs of labor. Apart from these difficulties, however, there is the insuperable one of practicability. Utilities are continually arguing for the reproduction theory, at the same time maintaining that they do not wish a fair return on such a basis because to endeavor to secure such would ruin their business. A glance at the statistics for interstate commerce shows the same condition, for the railroads as a whole have not yet secured the return they are legally entitled to, even on the tentative valuation of the Interstate Commerce Commission. What will be the situation if cost of reproduction under present conditions at current prices is to be the gauge and 7 or 8% the minimum fair return? Obviously, utilities will be able to demand practically all they can get and the commissions will have to fall back upon "reasonable ability to pay" as the only regulator, if they are to control rates at all.

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[5] *The United Railways and Electric Company of Baltimore v. Harold E. West et al.*, as reported in *United States Daily*, January, 7, 8, 9, 1930. See also dissenting opinions of Justices Brandeis and Stone.

[6] See also M. G. Glaeser, *Outlines of Public Utility Economics*, (New York: Macmillan Co., 1927), Ch. xxi; W. E. Mosher, *Electrical Utilities*, (New York: Harper & Bros., 1929), Ch. 2., Pt. 1. The latter work emphasizes the difference between the dictum of the courts and the actual decision rendered, but the reasoning behind this distinction seems to be somewhat strained, especially in view of the fact that one looks to the opinion for the theory lying behind the decision itself, and also because this theorizing is quoted as precedent in later cases.

[7] See, for example, 4 Cal. R. C. R. 1392; 7 Cal. R. C. R. 113; 7 Cal. R. C. R. 236; 18 Cal. R. C. R. 897. See also dissenting opinion of Mr. Justice Brandeis in St. Louis and O'Fallon case, *supra* n. 3.

[8] H. B. Vanderblue, *Railroad Valuation* (Boston: Houghton Mifflin Co., 1917); H. B. Vanderblue and K. F. Burgess, *Railroads, Rates, Service, Management* (New York: Macmillan Co., 1923), Ch. xxiii; J. C. Bonbright, "Valuation of Property as the Basis of Rate Regulation," 2 *Journal of Land & Public Utility Economics* 276-281 (July, 1926).

Cost of Reproducing the Service. The cost of reproduction theory may be interpreted in another way, however. It may be understood to mean the cost of producing a plant capable of rendering similar service.[9] This approach to the problem of the rate-base has an appeal because it seems to carry into the field of regulation the principles which govern the value of commodities in competitive price-making. Moreover, it has the merit of emphasizing the fact that values vary with price conditions and with the ever-changing methods and technique of production.

However, the fundamental objections to the cost-of-reproduction theory, as interpreted by courts and commissions alike, apply also to this second approach to the problem. Alternative cost of production does not determine *all* values in competitive business. For example, in times of over-production of a given commodity the sale price of that commodity in the market may be less than the current cost of manufacture. Hence, factories are closed down until readjustment has taken place and the market price has risen to a point where production again becomes profitable. Moreover, construction on plants is suspended, in part at least, because the value of the goods or services produced does not warrant the expenditures which would have to be made. Under such circumstances the cost of reproduction of the plant does not measure its current value. If competition is free, the value of a plant or commodity cannot be more than the alternative cost, but it may be less.

The alternative cost theory, as applied to a public utility enterprise, can mean only one thing, namely, what it would cost to construct an equivalent plant, since the privilege of purchasing one already in existence is generally impossible.

The cost of constructing a hypothetically equivalent public utility plant at any given time might entail a greater outlay than sound business dictates would sanction, since prevailing conditions might be such that the traffic would not stand rates which would yield an income sufficient to warrant the undertaking. Yet the existing organization might be functioning quite satisfactorily, and might be yielding an income decidedly attractive to investors. The value of the plant must certainly be less under these circumstances than the alternative cost of reproduction.

Furthermore, a considerable amount of the property of public service corporations is not freely reproducible. Land is an important item to these concerns, and, where location is of consequence, alternative cost fails entirely to establish a measure of its value. Railroad right of way is one case in point. For example, gateways through the mountains are essentially monopolistic and alternative choices do not exist. Alternative cost does not give a measure of value in such a case.[10]

Still another serious objection may be mentioned. If the alternative-cost

[9] H. G. Brown, *Economic Science and the Common Welfare* (Columbia: Missouri Book Co., 1923); "Railroad Valuation and Rate Regulation," 33 *Journal of Political Economy* 505 (1925); "Defects in Mr. Justice Brandeis' Theory of Prudent Investment as a Rate-Base," 12 *Cal. Law Rev.* 283 (1924). See also J. C. Bonbright, "Railroad Valuation With Special Reference to the St. Louis and O'Fallon Decision," *op. cit., supra* n. 2, and Professor Brown's discussion of that paper; also Mr. Justice Brandeis, dissenting opinion in the St. Louis and O'Fallon case, *op cit., supra*, n. 3. For a definite rejection of this theory by a commission, see *City of Los Angeles v. Los Angeles Gas and Electric Co.*, 13 Cal. R. C. R. 724; also, *McCardle et al., v. Indianapolis Water Co., supra* n. 3 at 417, "There is to be ascertained the value of the plant used to give the service and not the estimated cost of a different plant."

[10] See Glaeser, *op. cit.*, pp. 333-335, 470, for some objections to the alternative cost standard.

theory, as conceived by its proponents, is applied to the determination of the rate-base, financial embarrassment might easily follow, especially if the bonded indebtedness of the corporation were greater than the alternative cost. Yet one of the fundamental problems and duties of our commissions is to maintain sound credit conditions in the public service industry as a whole.

Finally, the insuperable problem of practicability arises again. To determine the alternative cost of a public utility it would be necessary to decide upon the ideal plant for a given enterprise, with the ideal location, and, of course, the cost of acquiring the necessary property in the locality chosen. The last would not be merely a question of discovering current land values, for, as a matter of fact, if such an undertaking were actually contemplated, it would immediately change property values in the vicinity affected. Finally, a necessary calculation would be to determine what such an enterprise might cost if it were to be built.

The argument may be advanced that these points are fanciful, but alternative cost is supposed to represent the actual cost at the time of inquiry of constructing a plant that will render the services demanded. Perhaps, on the other hand, some will reply that the calculations outlined above, not only *can* be made, but actually *are* made in competitive business; and that the business man is quite capable of making them. To this the reply is that a cost appraisal is only one step, often the first, in the business man's process of valuation. Another step is that of estimating whether or not the income will be sufficient to make the investment worth while. In competitive enterprises the test of the validity of such estimates lies in the success of the business. No such proof of the soundness of the hypothesis is available in the case of a public utility, however, because such a plant would not be constructed and operated.[11]

Investment Theory. The answer usually given to these objections is that investment must be the guide. Similar difficulties arise here, as in the other theory, but unfortunately they have been obscured by economic conditions now present, and by a confusion of thought as to the functions of courts and commissions in regulation.

Advocates of the investment theory insist that a stable rate-base is necessary, and also that the reproduction theory gives rise to so much "unearned increment." They maintain that the property devoted to the public use is nothing more than the money actually and reasonably invested by utility owners and that all they have a right to expect is a fair return on this amount.

One of the main criticisms advanced to the determination of the rate-base by proponents of the original-cost theory is that it is impossible to discover what this was in the case of corporations operating prior to the records of the commissions on actual investment. This, of course, is a very practical difficulty and might give rise to severe disputes in determining the money invested in a given property, but at that the problem is no more controversial than where cost of reproduction has to be ascertained. Once the fundamental question is settled on a theoretical basis, definite results could be achieved in concrete figures. Moreover, the problem of the past and that of the future differ. If prudent investment were chosen as the theoretically correct base, then at least

[11] For a careful analysis of the alternative cost theory see J. C. Bonbright, "The Economic Merits of Original Cost and Reproduction Cost," 41 *Harvard Law Review* 593 (March, 1928).

figures for investment since 1913 could be obtained for most utilities.

A second objection to the investment theory arises when the capital actually placed in a business is more than is demanded by the service requirements at the time. To meet this situation the regulatory bodies have devised the fiction of "reasonable investment." If a utility plant is larger than is necessary to supply the needs of the existing consumers, the rate-base is scaled down to the amount of investment "*reasonably necessary*" to satisfy the demands of the present, and of the immediate future. If the utility is in its developmental stage, the losses so sustained for the first five years have been included as a cost by the California authorities (and for an unstated period in Wisconsin), but where overinvestment is the result of poor judgment or a declining community the company has been forced to stand the loss. Where the existing utility plant is too large for the community the practice of commissions has been to take as reasonable investment the fraction of the present plant used in the service of the public. For example, if only ⅔ of the present plant is being used in the service of the public, then only ⅔ of the total estimated investment is taken as the rate-base. Yet it must be evident that probably more than ⅔ of the cost of existing plant would be required to construct one that would supply the needs at the time of inquiry.[12] Apparently in a case such as this the commissions have abandoned the theory of actual reasonable investment and have merely taken a very unsatisfactory short cut to determine alternative cost, a theory which they claim to have thrown overboard.[13] Under such circumstances the rate-base is obviously pure fiction, although it is supposed to represent something real.

A further difficulty connected with the original-cost theory of the rate-base is that it is too rigid. This objection furnishes the sponsors of the cost-of-production method with plenty of ammunition. This very problem has caused abandonment of the prudent-investment theory so often in actual practice, although lip-service has been rendered to it at the same time.[14]

The fact is that investment as a guide soon gets out of tune with actual conditions. Changes in the arts or in industrial conditions in the communities served may make reasonable investment at one time entirely different from what it would be at another. Yet use of the actual money expended, as the basis for calculating income, fails to take account of these changes. Moreover, the arguments now so strenuously advanced against public service corporations may act as a boomerang. The reproduction theory, although adverse to the consumer at present, may prove to be a friend later on. As a matter of fact, the public with a very obvious end in view, and not the utilities, originated

[12] See *Re Rates of City of San Diego*, 4 Cal. R. C. R. 902; *Southgate Gardens Water Co.*, 26 Cal. R. C. R. 506; also 9 Cal. R. C. R. 543; 2 Cal. R. C. R. 464; 3 Cal. R. C. R. 962; 4 Cal. R. C. R. 597; 5 Cal. R. C. R. 19. Also F. L. Holmes, *Regulation of Railroads and Public Utilities in Wisconsin* (New York: Appleton & Co., 1915). See also *San Diego Land and Town Co. v. Jasper*, 189 U. S. 439 (1903).

[13] *City of Los Angeles v. Los Angeles Gas and Electric Co., supra* n. 9. The courts apparently have never entertained this idea.

[14] See for example: *Re Rates of Southern Pacific Co.*, 5 Cal. R. C. R. 555; also 4 Cal. R. C. R. 1392; 7 Cal. R. C. R. 113 (also cited *supra* n. 7); *Covington and L. Turnpike Road Co. v. Sanford*, 164 U. S. 578 (1896); *Smyth v. Ames*, 169 U. S. 464 (1898); 63 I. C. C. 107; 64 I. C. C. 85; 68 I. C. C. 676; also dissenting opinion of Mr. Justice Brandeis in St. Louis and O'Fallon case; Bureau of Railway Economics, *Review of Railway Operations in 1926*, (Miscellaneous Serious, No. 42); Glaeser, *op. cit.*, p. 738; W. E. Lagerquist, *Investment Analysis*, (New York: Macmillan Co., 1921), Ch. XIX.

this approach.[15] Quite evident, too, is the fact that the contentions are being advanced today in the same spirit as formerly. The public on the one hand and the utilities on the other apparently are fighting merely for the present, each trying to get all it can with little regard to the future.[16]

Unfortunately the fundamental problem of regulation, at least as far as business aspects are concerned, has been obscured in the entanglements that have arisen around the concept of fair value. We have been side-tracked so beautifully by mediaeval concepts of a just price and by juristic concepts of property and property values, which savor very much of the ideas of John Locke and his associates, that we have paid little attention to the finances and financial requirements of public service corporations, and to the income which they must offer their investors and prospective investors in order to maintain their credit position in competition with other enterprises. In other words, attention must be focussed on revenue, for the investor buys income and where he will put his capital depends upon the inducements offered.[17]

II. Rates and Price Fluctuations

In the preceding section the relationship of changing prices and the determination of the rate-base has been discussed, but the problem of prices and their bearing on rates does not end there. The regulatory authorities have asserted that the return cannot vary with economic conditions; that it must be stable regardless of whether or not the country or industries within the country are prospering.[18] The theory behind this stand is that a fair return sets both the minimum and the maximum for rate-levels and hence the latter must be constructed so as to yield this fair return regardless of economic conditions obtaining at the time of inquiry. In other words, if 5¾% on the "fair value" is set as the fair return for railroads, or 7% for utilities, then rates must be such as to yield these returns even though the industries or communities served might be able, reasonably, to pay more, or might be able, reasonably, to ask for lower rates.[19] Such at least is the theory.

In actual practice, however, the theory just stated has not been adhered to. During the period from 1913 to 1921 rates failed to keep pace with increasing costs, with the result that returns fell below what the commissions themselves admitted to be fair. Indeed, in California the authorities stated that "utilities should certainly not expect the public

[15] For discussion of the development of the theory see H. H. Hartman, *Fair Value*, (New York: Houghton Mifflin Co., 1920), Ch. v. See also Edwin C. Goddard, "The Evolution of Cost of Reproduction as the Rate Base," 41 *Harvard Law Review* 564 (March, 1928).

[16] Leslie Craven, "Effect of the O'Fallon Decision on Valuation and Rate-Making," 87 *Railway Age* 341-343 (August 3, 1929) for a discussion of the railroad point of view.

[17] The writer recognizes the fact that many factors other than mere dollars and cents are considered by the investor, but the term "inducements" is a composite which varies with the type of securities in question. See E. M. Patterson, *Tests of a Foreign Government Bond* (New York: Payson & Clarke, 1928).

[18] See 63 I. C. C. 107. See also *Re Emergency Rates of Southern California Edison Co.*, 25 Cal. R. C. R. 461 and 25 Cal. R. C. R. 475 for a similar stand in California and the dissenting opinions for a statement of the opposite side of the case.

[19] The writer realizes that no definite rate of return has the unanimous support of the courts as being inherently fair, but it is to be noted that the various factors, influencing the return allowed, are such things as efficiency, amount of risk involved, and the nature of the enterprise, *not* the economic conditions obtaining at the time of inquiry. See *Willcox v. Consolidated Gas Co.*, 212 U. S. 19 (1909); *Union Pacific Co. v. Goodrich*, 149 U. S. 680 (1893); *Railroad Commissioners of Kansas v. A. T. and S. F. Ry. Co.*, 22 I. C. C. 407; *Railroad Commissioners of Montana v. B. A. & P. Ry. Co.*, 31 I. C. C. 641; see 19 Cal. R. C. R. 585; 24 Cal. R. C. R. 69. See also Hartman, *op. cit.*, Ch. IX.

to bear all of the burden of the prevailing abnormally high prices due to war conditions nor ask that they be permitted to earn the same returns that might reasonably be expected under normal conditions."[20] During the period of depression following the war the corporations were again expected to share part of the burden. Economic conditions compelled the *restriction*, and in many cases the *lowering*, of returns; in addition the commissions were forced to give way to public opinion.[21]

Undue restraint of rates during periods of rising prices has in many instances in the past retarded investment, and made many utilities incapable of meeting the increasing needs of consumers, while in the ensuing period of depression economic conditions have prevented them from making up lost ground. This has been especially true in the transport industries. This condition has been aggravated by the fact that demands on utilities have been greater than they would have been had rates increased somewhat more in harmony with conditions. Hence, the effect of such rate policies has been cumulative. For example, as a result of low rates the railways were in a serious plight in 1915 and quite unable to meet the emergency which followed later. They were in a very unsatisfactory condition when the period of federal control ended, and in spite of the prosperous times and record amount of traffic and earnings that have since followed, they have been able to build up little reserve strength against hard times.[22] Similarly the street railway situation affords a good object lesson.[23]

If utilities are compelled to devote their efforts in prosperous times to making up for preceding depression, it is quite evident that their condition can never be satisfactory. In other words, too much attention has been paid to the past and too little to the future.

This section so far has aimed to bring out the very definite relationship between revenues of public service corporations and economic conditions. This does not mean that rates should not be as stable as possible, commensurate with continued and satisfactory utility service. But it should not blind us to income requirements and the incidence of these as between good and bad times. An examination of actual condition shows that, in spite of the theory of regulation held at present, public utilities are not immune to general fluctuations of business; alternating periods of prosperity and depression make their influence felt on public utility revenues, although the inroads are less severe than in non-regulated industries. In other words, rates bear a definite relationship, because of economic necessity, to the income of those consumers whose cost of utility service is an important item in their annual expenses. The effect of economic conditions is probably more marked in the railroads than in other utilities, but the growing dependence of power utilities on the operations of industrial concerns is bringing the cycle

[20] *Re Application of Northern California Power Company Consolidated*, 15 Cal R. C. R. 208, 211.

[21] See 19 Cal. R. C. R. 585; 25 Cal. R. C. R. 461; 25 Cal. R. C. R. 475; 63 I. C. C. 107; 64 I. C. C. 85; 68 I. C. C. 676. See also dissenting opinion of Mr. Justice Brandeis in St. Louis and O'Fallon case, *op. cit.*; and Glaeser, *op. cit.*, Ch. XXXIII, sec. 2.

[22] See W. J. Cunningham, *American Railroads*, (New York: A. W. Shaw, 1922), Ch. II; Bureau of Railway Economics, *op. cit.*, p. 38; Glaeser, *op. cit.*, pp. 738ff.; George C. Brook, "A Cycle in the Economic History of Public Utilities, 1914–1922," 4 *Journal of Land & Public Utility Economics* 301-4 (August, 1928).

[23] See Lagerquist, *op. cit.*, Ch. XIX; D. F. Wilcox, *Analysis of the Electric Railway Problem* (New York: The Author, 1921); S. Daggett, *Principles of Inland Transportation*, (New York: Harper & Bros. 1928), Ch. v.

curves of the former into close consonance with general business curves.[24]

Rate-making is in the first instance an economic problem and no amount of law can make it otherwise. Commissions may prevent charges rising, to an extent at least, but by so doing they may seriously hamper the utilities. This has been the experience with railroads and street railways in this country. The authorities cannot, however, prevent rates, or at least earnings, falling. Thus, if utilities are to get an adequate income they must do so during periods of prosperity. The financial needs of public service corporations must be met sometime; they cannot be met, on the whole, during times of depression, hence they must be allowed to make up lost ground during good times. In addition, attention should also be directed to the necessity of acquiring, at the same time, a reserve strength sufficient to take care of future periods of strain.

This procedure is much more desirable from the standpoint of rate incidence. The problem is simply one of distributing the financial needs of corporations in the way that is easiest for consumers to bear. When the country or an industry within the country is suffering from economic depression, it needs assistance in the form of the lowest costs of production possible. Moreover, the utilities themselves need to encourage use of their services under such conditions, and so find it good policy to accord low rates. On the other hand, during prosperity the reverse becomes true, and customers are quite able to bear a proportionate increase in the burden of utility costs.

This close relationship between the income of public service corporations and contemporary economic conditions has been obscured by the theory of a "fair return on a fair value," at least as it is currently interpreted by commissions. The tendency of rate-making bodies is to fix upon a given rate of return, as the fair one; then rates are adjusted so as to yield, as nearly as possible, this theoretically fair return with little regard to prevailing conditions in other lines of business. This seems to be short-sighted and economically unsound. An adjustment of charges more nearly in accordance with current business conditions would redound to the benefit of utilities and consumers of their services alike.[25] The Transportation Act of 1920 appears to hamper the Interstate Commerce Commission in this respect, but no such limitation prevails in many of the states. For example, the California Railroad Commission has a completely free hand in rate-making as far as controlling legislation is concerned.[26] Nevertheless, the *theory* that rates should yield a constant return at all times persists, even there.

The second installment of this article, which will appear in the August issue, will continue the discussion of the economic aspects of valuation with special reference to the relation between economic theory and regulatory policy.

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[24] See A. E. Patton and O. Gressens, "Influence of Business Cycles on Utility Operations," 2 *Journal of Land & Public Utility Economics* 40-47, (January, 1926).

[25] The Hoch-Smith Resolution of 1925 apparently has this objective in mind, but runs counter to the announced policy of the I. C. C., see 63 I. C. C. 107. This resolution also introduces a conflict with the "rule of rate-making" of the Act of 1920, which is not easy to solve. See D. P. Locklin, *Railroad Regulation Since 1920*, (New York: A. W. Shaw Co., 1928), Ch. v.

[26] Constitution of California Article XII, sec. 22; also Public Utilities Act of California.

WILL VALUATION HISTORY REPEAT?

By BANCROFT HILL

THIRTY years ago a confiscation case arose in which one side urged investment as a base, and the other a valuation based on the then present day prices. Well, what of it; the same has been happening for years? The utilities want a rate-base reflecting present day cost and their opponents want investment. That is true, but the original case had one great fundamental difference. The utility was fighting for *investment* and its opponents were fighting for the *then present day cost.* The case for present day cost was well presented; so well that it won. The Supreme Court said that it was one of the elements which must be considered.

We see, today, a complete reversal of this situation. The utilities who 30 years ago pleaded the justice of investment, for some time have been on the side of value based on present day prices. The opponents of the utilities, who pointed out to the court 30 years ago that a thing was only worth what it cost to reproduce in its present condition, and that investment was no indication of value, now call upon the world to witness the terrible injustice to the consumer of a valuation based on present day depreciated cost. What causes this change in the conception of right and justice? Is it permanent this time or will it occur again?

The answer is simple enough. When the famous case of *Smyth* v. *Ames* was tried, prices had been dropping steadily since the Civil War and almost any structure could be duplicated at less than its original cost. In this position the opponents of the utilities were strong for present day cost of construction as the very upper limit of value but, by a strange chance, they happened to be at the bottom of the valley in general price levels existing between the Civil War and the World War. From that time prices began to go up and by 1913 they were 30% higher than at the time of *Smyth* v. *Ames.* In 1921 construction costs had reached a level practically double that of 1913. They were at a much higher relative level than general commodity costs. This level of construction costs has been virtually stable since then. The building index of the Federal Reserve Bank of New York is now (1929) 198, and that of the *Engineering News Record*, 209, both on a 1913 base of 100; and other good construction indexes are about the same. This change in level brought about by increase in gold, steadily rising wages, mass production, or whatever the real causes were, was sufficient argument to change completely the views of the contesting parties and after 1920 we find the utilities convinced of the soundness of present day prices as an indication of value and their opponents referring to that base as though its use would upset the very foundations of the Nation.

With such a change in fundamental conception, brought about by this reversed relationship between investment and present day cost, the question may well be asked will this change take place again, and if so, when? There is no question that this change will take place again in many cases. It is often possible to predict, with a fair degree of accuracy, whether such a change will take place and when. It is not possible, however, to lay down any rules that will apply to all classes of utilities or even to individual units in any of those classes,

because of the many factors which affect the ultimate result and the time of its consummation. A consideration of some of these factors may be of interest.

In the first place, nothing at present indicates that this change will be caused by an oft-predicted decline in construction prices. This predicted decline is based on the behavior of prices in the period following the Napoleonic Wars and following the Civil War. In both of these cases a sharp drop occurred in two or three years followed by a gradual decline lasting over 25 or 30 years. The same sharp drop occurred in 1919-20 following the World War; therefore, experience indicates that from 1920 for 25 or 30 years a gradual decline to about 50% of the 1920 price level should take place. In considering this prediction, we are, fortunately, not required to decide whether the experience of the horse-car can be applied to that of the aeroplane and the radio, because already 30% of the period when this decline was to take place has gone, and no decline has occurred. The building index of the Federal Reserve Bank of New York, now 198, was 175 for 1921, and that of the *Engineering News Record*, now 209, was 202 for that year. Other good construction indexes are about the same with minor fluctuations up as well as down. The representative indexes show little change from January 1, 1921. What change there is is mostly upward.

The falling price threat is used by the advocates of investment to show the present-day-cost people the fate that awaits them if they do not mend their ways and become prudent investors. It is based, so far, largely on hope. If prices are not to fall and bring about this reversal of position, what will?

The generally accepted method of accounting for depreciation on the basis of original cost will surely bring about this situation and at the same time dissipate part or all of the stockholder's equity. This result may be best shown by a simple example, the assumptions of which will closely approximate conditions actually encountered in many well-regulated utilities.

Let us assume a company under the following conditions: (1) book cost $1.00, by this is meant that, no matter what the actual condition of the property may be, its cost as shown by the books is $1.00; (2) a depreciation reserve of 5%, by this is meant that the company has set aside 5% of its book cost in a reserve fund to offset accruing depreciation; this fund may have, and probably does have, no connection whatever with the actual accrued depreciation; it is really a replacement equalization fund by which charges or replacements in the various years are equalized, but it is nevertheless generally known as a depreciation reserve; (3) a life cycle of 25 years, by this is meant that the depreciable property is renewed on an average of 25 years, although some may live 15 and some 35 years; (4) a property 100% depreciable, by which is meant that all of the property has to be renewed; and (5) a property whose index of construction cost is now 200% of pre-war. We will also assume that a commission valued this property on a basis of reproduction new less depreciation and gave it a condition of 85%. Before the rise in prices such a property would have an unamortized investment of 95 cents and a reproduction-new-less-depreciation value of 85 cents. It would be to the company's advantage to be valued on investment. After the rise in prices the company would have 95 cents investment and $1.70 reproduction new less depreciation. It would be to the interest of the company to be valued on the latter basis. So far, this is

CHART I

FIGURE 1

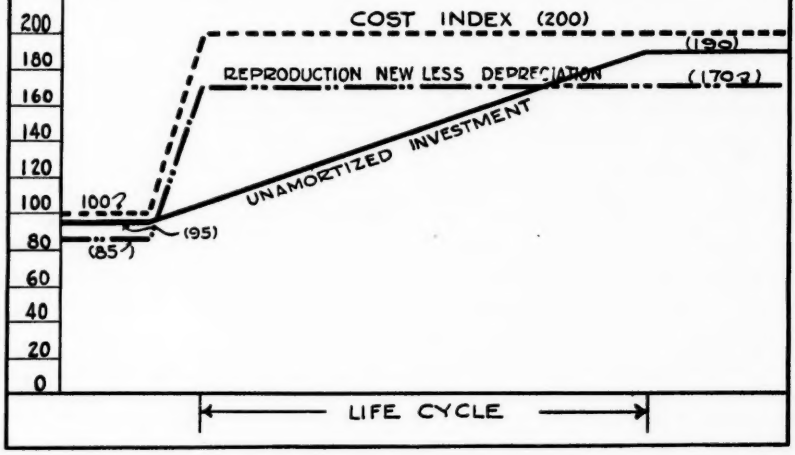
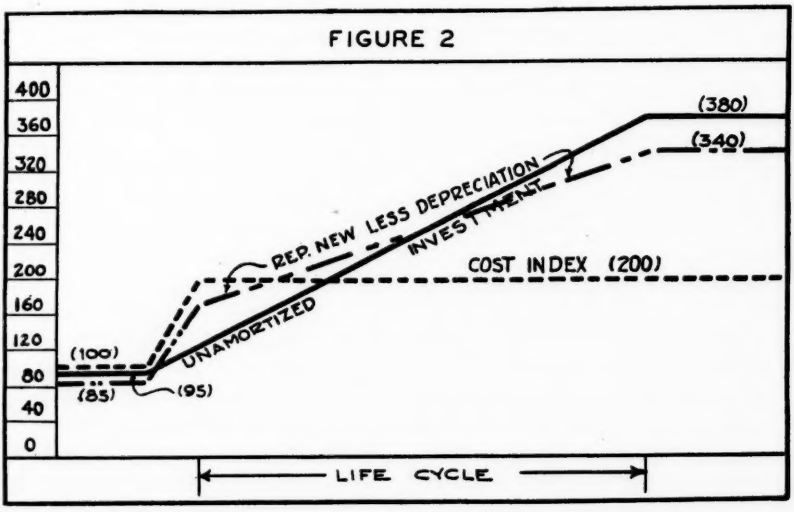


FIGURE 2



giving a very brief example of what happened between *Smyth* v. *Ames* and the period following the World War.

If the company is valued on reproduction new less depreciation, the stockholder has gained an equity to compensate him for the rise in price level in exactly the same way that he would had he owned property which he rented, or a warehouse full of sugar, or any other commodity that rose in price. The company in the period following the rise in prices proceeds to handle its retirements and its capital additions by the standard accounting theory, writing off obsolete or worn out property at original cost and placing new property in its assets at present day cost.

This works out each year about as follows. There is written off an average of four cents and added to the books an average of eight cents without any change in actual present day value. That is, there is simply the substitution of higher prices for the same amount of plant. In 25 years the original property has been written off and the book value is now $2.00 and under the same ratio the depreciation reserve is 10 cents, the unamortized investment is, therefore, $1.90 and the reproduction new less depreciation value is $1.70. Positions are again reversed. The reversal in this case takes place 20 years after the rise in prices. Roughly, 10 of those 20 years have already gone. This case is shown graphically in Figure 1 on Chart I.

Against this statement the argument will be urged that it neglects the effect of actual added plant, as though that had something to do with the case. Suppose the amount of physical plant (not cost or value) doubled in the 25 years under discussion. The original plant will be renewed as in the first case. Its unamortized investment at the end of the period will be $1.90 and its reproduction-new-less-depreciation value $1.70, both as above. An equal amount of new plant will also be added during the period under discussion but it will be added under the present day index of 200 and will cost, therefore, $2.00. If the same ratio of reserve has been set up, the unamortized investment for this added plant will be $1.90 and the reproduction-new-less-depreciation value will be $1.70. The total investment base will be $3.80 and the total then-present-reproduction-cost-less-depreciation base, $3.40. The positions are just as much reversed as in the first case but the reversal comes sooner for the expanding company. It takes place in the seventeenth year or about seven years from the present time, 1930. The faster the plant grows, the more quickly the reversal takes place. This change is shown graphically in Figure 2 on Chart I.

The objection will also be urged that no such mathematical precision is possible. That objection is, undoubtedly, founded on the truth, as numerous factors tend to speed or retard the point where investment equals reproduction-new-less-depreciation value, but although they are numerous and although they may differ for each company and class of property, as a general rule they do not operate to affect the final result except in the question of time and amount.

The following are some of these factors: first, the actual physical condition of the plant. The book value may be and often is no indication of plant value. It may contain items which, if not actually gone, are no longer "used and useful." In this case, it is possible that reproduction new less depreciation may never have been more than investment. Investment, as shown on the books, may be perfectly honest, but, because of sudden obsolescence of a large part of

the property, it may be that giving present day prices to what remains in actual use will not equal the unamortized investment. In this case the utility's position will not be reversed, because it would never have been an advocate of present day cost in the first place. Although this is an extreme case, doubtless many companies are affected by this condition.

It may be that present day value only slightly exceeds investment, in which case, although the utility may for a while be better off under present day prices, the reversal of position will occur in a very short time. At the opposite extreme is a company which has provided more than enough reserve to off-set its accrued depreciation. This company will always be better off under present day prices and its position will never be reversed.

Second, the life cycle affects the time when a reversal may take place. By the life cycle is meant the average life of the whole property weighted on a money basis. By money basis is meant that, on a property consisting of two units, one having a life of 10 years and a cost of $1.00 and one having a life of five years and a cost of $2.00, the weighted average life on a money basis would be six years and the necessary replacement charge 50 cents a year. If the cycle is short and the property turns over rapidly, as in the telephone business, the reversal will take place in a very short time. If the life cycle is long, as in the water business, the reversal may be long delayed. It should be pointed out here that the financial policies of the company have nothing to do with the life cycle of its property. This is entirely dependent on physical and not financial conditions.

Third, the ratio of depreciable to non-depreciable property affects the time of reversal. If a property is made up of depreciable units, the effects of the standard accounting theory will operate fully. If, however, there is a large proportion of undepreciable property, such as land, then the effects of the standard accounting practice may never have sufficient weight to reverse this position, although they may seriously affect the stockholder's equity.

These are some of the factors which affect the question as to whether there will be a change in position of a utility as regards investment as opposed to reproduction value. Many others could be mentioned. Of course, these factors do not apply to the company that sets up depreciation on the replacement basis, because this company will not add to its capital or debt anything representing simply increased cost and will, therefore, maintain its value on a parity with its capital. Such a company might be affected by a decline in prices, but under ordinary conditions the company will not be worse off for many years, if the decline should take place; and at present there are no signs of it.

An actual example will, perhaps, best explain the position of the company depreciating on replacement value: If a railroad has 100 lb. rail which cost $26.00 a ton before the war and renews it with rail of the same weight at $48.00 a ton, which is about the present-day price, under the standard accounting theory 78 cents a track foot should be collected from the consumer for depreciation of the old rail and written off the assets. The new rail of exactly the same weight will cost $1.44 a track foot and will be written into the assets at that amount. The book assets have, therefore, risen 66 cents with exactly the same property and earning power that existed before. Of course, a corresponding increase will be shown on the capital or debt side. This takes into considera-

tion no increase in weight of rail. There is no added plant or value. If the weight of rail is raised from 100 lb. to 130 lb., then, of course, 43 cents more will be added to capital, but in this case 43 cents will represent a real addition. The company that sets up depreciation on the replacement basis will charge depreciation with the replacement cost of the 100-lb. rail, or $1.44, and will not raise either its book capital or debt and add something which represents only increased cost and not increased facilities.

If, in spite of the fact that the history of prices is not at present repeating itself, it is still held that we must count upon a repetition of price history, then we must accept the whole past experience and this experience shows that we can expect another war to raise prices about the time their fall would work a hardship on the company which provides for depreciation on present costs.

The lawyers have the saying that, "a will case has no twin brother," and the same is probably true about depreciation. There is, however, no mystery about the subject and, if the particular conditions are understood, the result should be predicted with as great accuracy as any other future happening.

COLLECTIVE BARGAINING BY UNIONISTS IN THE ELECTRIC POWER INDUSTRY

By CHARLES F. MARSH

ANY study of the collective bargaining activities of trade unionists in the electric power industry must consist very largely of a study of the activities of unions made up of so-called "outside" electrical workers, since very few of other classes of central station employees belong to unions. Most of the outside electrical workers are linemen, but cable-splicers, metermen, troublemen, and sub-station operators are also included within this group. In so far as these workers are organized at all, they belong to the International Brotherhood of Electrical Workers. Hence, this study must focus upon the collective bargaining activities of that Union in the central station industry.[1]

Local branches of the Electrical Union have attempted to share in the determination of wages, hours, and other working conditions of power and light employees ever since the organization of the national Union in 1891. Although these attempts to bargain collectively with central station employers have met with varied success and the membership has fluctuated considerably during the life of the union, the general methods have remained virtually the same. Before attempting to study the effectiveness of joint action by Union workers in the industry, some description of these general methods should be given.

Collective Bargaining Methods

Negotiations with central station employers have been carried on very largely by local unions of the Brotherhood. Locals have sometimes acted jointly when their members were employed by the same company, and in a few instances, an International or District Council Officer has negotiated an agreement for a large number of locals whose members were employed by the same company. In no case has there been anything in the nature of a national agreement.

Before an attempt is made to negotiate with the officials of a company, certain preliminary steps are usually taken.

(1) First of all, as many as possible of the employees of the company are initiated into the Union. The methods used to organize these men vary according to circumstances. In case there is no local union in the vicinity, an International organizer is sent in to interview the men and establish a local, if possible. Where a local union is already in existence, the organizing work is done by members of the local, the business agent of the local, or an International organizer. Sometimes all three of these agencies are used. The larger unions employ a paid, full-time business agent to get new members as well as to carry on negotiations with employers. Such an agent is likely to be more successful in both functions than is a union member dependent on a job for continued income. The smaller unions must depend, very largely, on the necessarily infrequent visits of International organizers, as far as personal solicitation is concerned.[2]

[1] See article "Trade Union Activities in the Electric Power Industry," 5 *Journal of Land & Public Utility Economics* 363–369 (November, 1929) for a discussion of the extent to which the various types of central station workers are unionized and the general relation of the I. B. E. W. to the industry.

[2] The problem of the small union is indicated in the

(Footnote 2 continued on page 143)

Prospective members are solicited, where possible, on the job. If the company is exceptionally friendly toward the Union, business agents or other members of the local are given permission to do this. In most cases, however, the companies will not permit this and the work has to be done without their permission. This is not difficult, however, as a lineman's work usually takes him some distance from the offices of the company.[3] The line foremen, who represent the management's interests in the field, are often as susceptible to union influence as the men themselves. Where the local is not strong enough to employ a business agent, personal solicitation is usually confined to calls at the prospect's home after working hours. In some cases very little personal solicitation occurs. Prospects are canvassed by mail with letters, trade union literature, and invitations to open meetings, where programs are specially arranged to boost membership, and even reduced initiation fees are offered.

The securing of better conditions by the union, either through peaceful means or through a successful strike, has generally been an impetus to further organization. It seems more fitting, however, to consider such an accomplishment as the result of strong organization rather than as a means to organization. Conversely, attempts to negotiate with the officials of a company before that company's employees have been properly organized have rendered the local union ineffective and useless.[4]

(2) A further preliminary step to negotiating with employers for improved conditions is the building up of the morale of the local union. The success of any organization depends very largely upon the loyalty of its members. Especially is this true of an organization such as a trade union, whose activities often put the loyalty of its members to severe tests.

Several methods have been used to build up this qualitative strength of the Electrical Union. Constant attempts have been made to instill the principles of trade unionism in the new members through educational means. Chief among these have been the *Electrical Worker*,[5] the official *Journal* of the International Brotherhood, and the programs of the local union meetings. Most of the articles in the *Electrical Worker* have dealt with the principles of trade unionism, and most of the speakers at meetings of local unions have based their talks on this same subject.

Of greater effectiveness in retaining the loyalty of the members have been the various beneficiary features of the Union. Some form of death benefit has been in existence since the establishment of the Brotherhood. Strike benefits have been paid more or less intermittently by the International Union

(*Continued from page 142*)

following letter from a union lineman in Pasadena, California: "But, Mr. Grand Officer, why not you assume some of the blame and responsibility of the unorganized conditions of the outside electrical worker? You can't expect locals with a membership of 10 or more up to 20. . . . to maintain a business agent to organize the local field. And, in most cases, the individual member can't talk unionism through fear of losing his job, for most of the outside men are holding their jobs due to their ability to 'cut the mustard' and keep a closed mouth, rather than through the I. B E. W. . . ." W. H. Lennox, *Journal of Electrical Workers and Operators*, May, 1925, p. 447.

[3] In the course of a discussion on union labor at the 1905 Convention of the National Electric Light Association, a Mr. Scovil said: "I know it is one of the most difficult things to keep linemen out of the unions. A lineman in the ordinary electric light station is obliged to go all over the city, and he is frequently accompanied by but one or two associates." (*Proceedings*, N. E. L. A., 28th Convention, 1905, p. 136.)

[4] See statement by C. P. Ford, International Secretary, I. B. E. W., *Journal of Electrical Workers and Operators*, November, 1916, p. 239.

[5] The name was changed to *Journal of Electrical Workers and Operators* in January, 1915.

and its branches. Many local unions have had some plan for the payment of benefits to sick and disabled members. A pension plan was adopted at the 1927 Convention of the I. B. E. W., and went into effect January 1, 1928.[6] In addition to the usual social activities, in recent years auxiliary locals made up of the wives of members have been organized.[7] A department for women readers appears regularly in the official *Journal*. These are plainly attempts to win the loyalty of the wives and thus make it harder for members to drop out of the organization.

(3) The third and final preliminary step is the drawing up of a wage scale and schedule of working conditions by a regularly constituted wage committee and the approval of this schedule by the members affected by it. An international officer is often called in to assist in drawing up this wage schedule. In recent years a research department has been established in the office of the International Secretary in Washington, D. C. During the two-year period covered by the 1927 *Report* of the Secretary, more than 50 local unions were given active and technical assistance in the preparation of wage briefs used in negotiations with employers. More than 20 other local unions were given information relative to wages and cost-of-living data.[8]

Having passed through these three preliminary stages, the local union is then ready to enter into negotiations with employers. This does not mean that every local, before it presents its demands to a company, has taken all preliminary steps outlined above. In many instances local unions have presented demands shortly after they were organized. Most of them, however, have been relatively unsuccessful in dealing with employers, unless they have been strongly organized, both quantitatively and qualitatively, and have used great care in drawing up their wage schedules.[9]

Demands for improved working conditions have been presented in two forms. The usual form is a written, more or less formal, statement of working conditions which, when signed by the officials of the company and representatives of the union, is known as a trade agreement. The laws of the International Brotherhood make it necessary that all agreements be approved and countersigned by a representative of the International Office. The verbal request for improved conditions is the second form. The latter is seldom used, however, as even when the union officials have slight hope of obtaining other than a verbal understanding with the company, demands are usually presented in the form of a written agreement.

The action of the company depends, among other factors, upon its financial condition, the condition of the labor market, the company's immediate need of the services of the particular laborers concerned, the attitude of the company's officers toward union labor, and the degree to which the men are organized.

[6] *Proceedings*, I. B. E. W., 19th Convention, 1927, pp. 95–99. These beneficiary features will be analyzed in greater detail in a future article in this *Journal*.

[7] *Journal of Electrical Workers and Operators*, November, 1923, p. 659.

[8] *Report of Officers*, I. B. E. W., 1927, p. 46. Although the *Report* does not state whether these locals were made up of central station employees or of other types of electrical workers, it is probable that only a small number were of the former type. The fact remains, nevertheless, that the facilities are there for the use of union central-station employees, as well as for electrical workers employed in construction and other industries.

[9] The case of Local No. 705, of St. Petersburg, Florida, is in point. It was organized in the latter part of March, 1925. Early in May demands were presented to the Pinellas County Power Company. The Company refused to grant them and the linemen and helpers went out on strike. No settlement was reached. The *Local Union Directory* of the Brotherhood, for the last quarter of 1927, shows that the union is no longer in existence. (See *Journal of Electrical Workers and Operators*, April, 1925, p. 348; May, 1925, p. 457; May, 1926, p. 241.)

The alternative types of action can be roughly classified as follows: (1) accept the agreement; (2) express a desire to compromise and negotiate further with the union representatives; (3) refuse to sign the agreement but agree verbally to grant all, or a part of the conditions asked; (4) refuse to grant the conditions asked; (5) refuse to deal with the union; (6) lock out the union men employed by the company.

The action of the union depends, among other factors, upon the action of the company, the strength of the union, and the condition of the labor market. If the company signs the agreement, the members of the union go to work under the new conditions. The second and third types of company action may result in almost immediate settlement, long drawn-out negotiations, or a strike or lockout. The last three types of company action result in the union declaring the company "unfair," and in suspension of work. Such action is, of course, automatic, in case of a lockout. If the union is not very strong or if other circumstances make it unwise to call a strike, the company's refusal to grant the demands or to deal with the union may cause the union to drop the matter until circumstances are more auspicious. International representatives often assist the members of the union in deciding what action shall be taken.[10]

Effectiveness of Collective Bargaining

The great lack of dependable data makes it very difficult, if not impossible, to measure with any degree of accuracy the effectiveness of collective bargaining by trade unions in the electric light and power or any other industry. Nevertheless, after a careful study of all available materials bearing on this subject,[11] the writer feels that certain quantitative data which he has encountered may be of assistance in arriving at fairly reasonable conclusions. The different types of data are as follows: (1) the number of members claimed by the International Brotherhood of Electrical Workers; (2) trade agreements entered into between central station employers and unionists; (3) strikes against central station employers; and (4) changes in wages and other working conditions.

Membership data are valuable in attempting to discover the effectiveness of collective bargaining, since there is always a more or less direct correlation between the success of a union in securing concessions from employers and the size of its membership. An axiom of trade union policy states that a local cannot expect to keep its old members and attract new ones unless it can show such concrete evidences of success as satisfactory wages and working conditions for its members.[12] Table I indicates the changes in membership of the International Brotherhood of Electrical Workers from the time of its organization to January, 1928.

[10] Between July, 1919, and July, 1921, 964 official requests for assistance in negotiating agreements or adjusting disputes with employers were received at the International Office. Of these, settlements acceptable to those interested were reached without suspension of work in 881 cases. (C. P. Ford, International Secretary, *Report of Officers*, 1921, p. 48.) It should be noted, perhaps, that these requests included those from union electrical workers employed in other industries as well as from central station unionists.

[11] The chief sources were the official publications of the International Brotherhood of Electrical Workers, particularly letters of members of local unions which appeared in the official *Journal*, the publications of other unions such as the International Union of Steam and Operating Engineers and the International Brotherhood of Firemen and Oilers, the files of the *Electrical World*, and the *Proceedings* of the Conventions of the National Electric Light Association. These sources were verified and supplemented by general reading and by interviews and correspondence with employers and union officials.

[12] In some cases, this would mean improved wages and working conditions; in others, it would mean the maintenance of existing schedules.

TABLE I. MEMBERSHIP OF THE INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS*

1891.....	286	1900.....	4,290	1911....	6,500
1892.....	2,011	1901.....	4,886	1913....	23,500
1893.....	2,052	1902.....	8,612	1915....	35,553
1894.....	983	1903.....	9,922	1917....	57,112
1895.....	1,053	1904.....	18,341	1919....	121,792
1896.....	1,164	1905.....	24,200	1921....	100,000
1897.....	1,711	1906.....	30,793	1923....	69,200
1898.....	971	1907.....	29,971	1926....	140,000
1899.....	1,716	1909.....	9,000	1928....	140.000

*The data for the years 1891–1921 are taken from a table which appears on pp. 21 and 22 of a study by M. A. Mulcaire entitled "The International Brotherhood of Electrical Workers, A study in Trade Union Structure and Functions," 5 *Catholic University of America Studies in the Social Sciences*. Mr. Mulcaire explains that, except for 1909, 1911, and 1913, the figures were taken from the *Reports* of the International Secretary. As no official figures were published during 1909, 1911, and 1913, because of the secession of a large number of members, the figures given for those years are only estimates arrived at by dividing the total per capita tax by the amount which each member was obliged by the Constitution to pay annually. The 1923 figures were obtained from the *Report of the Secretary*. (*Report of Officers*, I. B. E. W., August, 1923, p. 23.) The 1925 and 1927 *Reports* of the Secretary do not give membership figures. The 1926 figure comes from the *Handbook of American Trade Unions*, p. 25. The 1928 figure is that given by Secretary G. M. Bugniazet in a communication addressed to the author dated January 20, 1928.

The value of these data for our purpose is lessened considerably, however, by the fact that it refers to the total membership of the Brotherhood, which includes workers employed in building trades, railroads, and other fields of employment, as well as those employed in the central station industry. In the earlier years, there is reason to believe that the total membership was divided rather evenly between inside wiremen and linemen and that many of both types of electrical workers were central station employees. In later years, however, particularly since 1923, the proportion of inside wiremen, most of whom are employed in the building trades, has increased materially.[13] Data are too incomplete to warrant a definite, unqualified statement concerning the numerical strength of the Union in the electric light and power industry.[14]

Data concerning trade agreements and strikes apply directly to the central station industry and are, consequently, of greater value than the membership data discussed above. They are, however, subject to a number of disadvantages. In the first place, they include by no means all agreements and strikes which have affected central station employers and union electrical workers. They include only those strikes and agreements concerning which the author was able to find relatively complete information. In the second place, they are drawn very largely from trade union sources, which could not always be checked against employers' statements and impartial sources.[15] In spite of these disadvantages, however, the author believes that

[13] In the early days of the light and power industry, its employees wired residences and other buildings for prospective customers. Very few companies employ wiremen for such purposes today, however, as this class of work has been turned over to independent contractors. Some inside wiremen are employed almost exclusively in power-house and sub-station construction and are on the regular payroll of some of the larger power companies or their affiliated construction companies. Others are employed regularly as station electricians. For the most part, however, this type of worker is employed by other than central station employers.

[14] In the writer's opinion, the correct number is somewhere between 10,000 and 20,000. In order that the reader may form his own opinion, however, the more presentable data which served as grounds for the writer's estimate are here given. The *Directory of Local Unions for the Fourth Quarter of 1927* of the International Brotherhood of Electrical Workers shows the following distribution of the 653 local unions: Mixed, including mostly inside men and linemen, 311; Inside Wiremen, 176; Line and Cable Splicers, 80; Power-House, 2; Railroad, 66; Shop, 5; and Miscellaneous, including navy-yard, fixture hangers, bridge-operators, etc., 13. Secretary G. M. Bugniazet of the I. B. E. W., in a communication addressed to the author on April 2, 1927, estimated that 60,000 members were employed in the central station, electric railway, and telephone industries. F. C. Huse, an officer of Local No. 193, Springfield, Illinois, and a veteran electrical worker, estimates that outside union electrical workers in the central station industry number about 50,000 (*Journal of Electrical Workers and Operators*, March, 1927, p. 145). On May 15, 1927, local unions in 26 cities reported a total membership of 3,464 linemen and cable splicers, practically all of whom were light and power workers. ("Union Scales of Wages and Hours of Labor," *Bulletin No. 457*, United States Bureau of Labor Statistics, pp. 1, 165–166).

[15] Throughout his study of the letters by local union members and officials, however, which served as the chief source of information, the writer was struck by the fairness and accuracy with which relations between unionists and their employers were usually recorded.

the data contained in Tables II and III may be of considerable assistance in studying the effectiveness of collective bargaining by trade unions in the electric light and power industry.

TABLE II. TRADE AGREEMENTS BETWEEN THE ELECTRICAL WORKERS UNION AND CENTRAL STATION EMPLOYERS, 1891–1928*

Period	Total Number	Number Signed	Number Verbal	Number Secured Peaceably	Number Secured by Strike
1891–1903	5	3	2	2	3
1903–1908	28	14	14	19	9
1908–1913	4	2	2	3	1
1913–1916	22	14	8	20	2
1916–1920	195	108	87	168	27
1920–1924	23	18	5	21	2
1924–1928	27	20	7	26	1
Total	304	179	125	259	45

*See n. 11 above for description of sources. Briefs of each of the agreements listed above can be found in the appendix to the writer's study entitled "Trade Unionism in the Electric Light and Power Industry," the original manuscript of which reposes in the University of Illinois Library and is to be published in the near future as No. 2, Vol. XVI, *University of Illinois Studies in the Social Sciences.*

A cursory examination of the data contained in these two tables and of the membership data in Table I will show a marked correlation between the effectiveness of collective bargaining in the central station industry, as measured by number of agreements entered into and number of successful strikes, and the total membership of the International Brotherhood of Electrical Workers. It is evident that the influence of the Union in the industry was particularly strong during the 1916-1920 period, that an early peak was reached during the 1903–1908 period, and that marked recessions occurred after each of these periods. These changes in the power of unionism in the industry, and, indeed, the reasons for dividing the history of Union activities into the seven periods listed in Tables II and III can be explained only in the light of certain broad factors. Before discussing these factors, however, it may be advisable to examine briefly a fourth type of data which may be of assistance in measuring the effectiveness of collective bargaining in this industry namely, data relating to changes in wages and working conditions.

TABLE III. STRIKES BY ELECTRICAL WORKERS AGAINST CENTRAL STATION EMPLOYERS, 1891–1928*

Period	Total Number	Number Won	Number Lost	Number Result Unknown
1891–1903	7	3	.....	4
1903–1908	20	9	5	6
1908–1913	4	1	1	2
1913–1916	6	2	2	2
1916–1920	84	38†	23	23
1920–1924	23	2	19	2
1924–1928	5	1	4	.....
Total	149	56	54	39

*See n. 11 for description of sources. Briefs of each of the strikes listed above can be found in the writer's study referred to in note accompanying Table II.

†The discrepancy between this figure and the figure in the last column in Table II for the same period is explained by the fact that data concerning 11 of these strikes, while complete enough to warrant the conclusion that they were successful, do not give sufficient information concerning the settlement reached to warrant their inclusion in the total of agreements secured by strike.

This type of data should be the best index of the effectiveness of collective bargaining, assuming that the data are complete and accurate. As a matter of fact, this information is one of the least dependable measures because changes in wages and working conditions are dependent upon a multiplicity of factors of which collective bargaining by unions is only one. It is generally recognized, however, that union activities tend to accelerate the upward trend of wages during periods of rising prices and tend to retard the downward trend of wages in periods of falling prices. Information concerning the general level of wages paid to all electrical workers in the central station industry is lacking. Yet the informal reports of local unions yield sufficient information to indicate the tendency of linemen's wages. This is particularly true for the period 1916-1920, which, as we have seen, was the period of greatest activity on the part of unions.[16]

[16] Data prior to 1916 are so sparse that they do little more than indicate a gradual increase in linemen's wages. The *Electrical Worker* for July 1897, (p. 9), carried a report from Local No. 1 to the effect that

(Footnote 16 continued on page 148)

Table IV presents data on hourly wage rates between 1916 and 1920 obtained from local unions in 90 different cities.[17] During this period labor was scarce relative to the demand for it and this fact

TABLE IV. HOURLY WAGE RATES OF ELECTRICAL WORKERS IN THE CENTRAL STATION INDUSTRY, 1916–1920*

Year	Number of Hourly Wage Rates	Range (In Cents)	Model Rate (In Cents)
1916	36	30 —58	40
1917	39	31½—62½	50†
1918	52	40 —78	62½
1919	36	45 —$1.00	75
1920	25	42—$1.01½	75‡

*No attempt is made to impart statistical accuracy to these figures.
†Almost as many instances of a 44-cent rate were reported.
‡Almost as many instances of an 87½-cent and $1.00 rates were reported.

was an underlying reason for the success of union attempts to increase wages. These rates, nevertheless, were taken, for the most part, from wage scales which had been secured through union influence; hence, the increase in the general level of linemen's wages, in so far as it is indicated by the above data, may be attributed to a considerable extent to collective bargaining activities by Unionists.[18]

Improved working conditions during this period also testify to the effectiveness of collective bargaining. The 9-hour day was generally specified in agreements drawn up during the earlier years of this 1916-1920 period, though the 8-hour day was not uncommon. The 10-hour day had not entirely disappeared.[19] Station operators in a few companies still worked 12 hours.[20] Agreements entered into in 1919 and 1920 provided for eight hours more often than nine, and the 10-hour day had practically disappeared.[21]

(Continued from page 147)

many linemen refused to join the union because the union scale of 20 cents per hour for a 10-hour day was no higher than the non-union wage. A two-week strike late in 1900 by linemen employed by the Independent Electric Light and Power Co. of San Francisco, resulted in an agreement calling for an hourly wage of 37½ cents and an 8-hour day. (36 *Electrical World* 927 (December 15, 1900.)) In May, 1905, the California Gas and Electric Co. agreed to pay its linemen 44 cents per hour for an 8-hour day. (*Electrical Worker*, May, 1905, p. 38.) Early in 1911, Local No. 140, of Schenectady, N. Y., signed an agreement with the local electric light company which provided for 33-⅓ cents per hour and reduced the working day from 10 to 9 hours. (*Electrical Worker*, April, 1911, p. 187.) The Pacific Gas and Electric Co., on May 21, 1913, agreed to pay union linemen 56¼ cents per hour for an 8-hour day. (L. C. Grasser, International Vice-President, *Electrical Worker*, July, 1913, pp. 1045–1047.) Union linemen in Davenport, Iowa; and Rock Island, Illinois, signed an agreement with the power companies in that vicinity for an increase in wages from $3.50 to $3.75 for a 9-hour day early in 1915. (*Electrical Worker*, May, 1915, p. 321.) The October, 1915 *Electrical Worker*, on p. 187, carried the following statement by a member of Local No. 313, of Wilmington, Delaware: "Nine years ago, the light company paid $2.75 for 9 hours; today, $3.00 for the same amount of hours, straight time for overtime and holidays. Now, let us hope in the next nine years, the brothers will see fit to ask at least for 25 cents more."

[17] The sources of these data were informal reports of local unions on working conditions in electric light and power companies in their jurisdiction.

[18] That employers recognized the effectiveness of collective bargaining by trade unionists is indicated by the following statement by Mr. A. L. Loiseaux during the course of the discussion on labor problems at the 1919 Convention of the National Electric Light Association: "When the committee investigates the wage or compensation of labor, it should also investigate the wage of weekly or monthly employees as well as the wage of labor paid by the hour . . . The *trade unions have demanded and obtained wage increases corresponding with higher living costs*. It is, therefore, only just that salaried employees should be raised to a new wage level . . . This change, if made spontaneously, by the electrical industry, would reflect much credit to the industry, while, if not granted, *might result in unionizing clerical and other occupations*. (*Proceedings*, N. E. L. A., 42nd Convention, 1919, p. 315.) (Italics mine).

[19] Linemen of the Buffalo General Electric Company worked 10 hours per day in May, 1916 (*Journal of Electrical Workers and Operators*, May, 1916, p. 733). A year later, they were working nine hours per day. (*Ibid.*, May, 1917, p. 623.)

[20] The 12-hour day was provided for operators in an agreement between the Monongahela Valley Traction and Light Co. and Local Unions No. 755 and 756 of Clarksburg and Fairmont, West Virginia, respectively. (*Journal of Electrical Workers and Operators*, August, 1918, p. 36.)

[21] Many types of improved conditions other than wages and hours were provided for in agreements between unions and employers during this period. They related to the "closed shop," time spent in traveling between the company's storeroom and the scene of the

(Footnote 21 continued on page 149)

Wage data and data relating to working conditions since 1920 are of little assistance in studying the effectiveness of collective bargaining. Local unions, in a few instances, were able to prevent wage reductions[22] and, in others, actually secured increased wages and improved conditions.[23] In general, however, the power of unionism in the central station, as in other industries, declined greatly. Very little specific data concerning wage reductions are available, but the information is sufficient to support the conclusion that trade unions were able to do little or nothing to prevent wage reductions. Many local unions went out of existence during this period and others lost so many members that whatever influence they had previously enjoyed over wages and working conditions was destroyed.[24] Another factor which lessens the value of wage data as a measure of the influence of unionism in the industry is that the general wage level of linemen employed by electric light and power companies is actually higher than it was in 1920,[25] in spite of the fact that the strength of the Electrical Workers Union, as measured by the data concerning trade agreements and strikes described in Tables II and III, is at a much lower ebb than it was in 1920.[26]

In general, the data contained in these two tables constitute a far better measure of the effectiveness of collective bargaining in the power industry than either the wage data discussed above or the membership data described in Table I. The broad factors which must be considered if we are to arrive at a satisfactory explanation of the changes in the influence of the Electrical Workers Union in the industry indicated in Tables I and II, as well as by the other two types of data mentioned above, are as follows: (1) general business conditions; (2) internal condition of the Union and its relations with other unions; (3) character of the lineman; (4) developments within the industry, physical and economic; and (5) influence of governmental bodies.

General Business Conditions. During periods of prosperity, particularly from 1916-1920, the demand for labor, in the electric light and power, as well as other industries, far exceeded its supply. Employers were generally willing to grant the demands of the union in order to keep men at work. Particularly was this true during the war period, because of the number of men in military service and other war work. Hence, the

(*Continued from page 148*)

linemen's daily work, overtime, time lost because of bad weather, hazardous working conditions, seniority, arbitration of disputes, etc.

[22] Local No. 500 successfully opposed a reduction by the San Antonio Public Service Co. in 1921. (D. W. Tracy, International Vice-President, *Report of Officers*, I. B. E. W., 1923, p. 73.) In June, 1922, Local No. 51, of Peoria, reported: "Not long ago . . . the word got around that there was going to be another cut. So we got busy and went to them for a raise. Well, we didn't get any raise, but we didn't get any cut either. (*Journal of Electrical Workers and Operators*, June, 1922, p. 359.)

[23] Local No. 84, for instance, of Atlanta, reported (*Journal of Electrical Workers and Operators*, May, 1921, p. 638,) that it had signed an agreement with the Georgia Railway and Power Co. which provided for an increase in wages from 64 cents to 72½ cents per hour. This was the result, to a large extent, of the exceptionally strong position of the local union after the termination of its successful strike against the Company in 1919.

[24] In 1920, Local No. 24 claimed 90% of the electrical workers of the Minneapolis General Electric Co. (E. M. Stanchfield, *Journal of Electrical Workers and Operators*, February, 1920, p. 385.) A few years later, Vice-President Broach reported that he had "closed up the affairs of the local." (*Report of Officers*, I. B. E. W., 1923, p. 71.)

[25] The average hourly wage of union linemen in 26 cities in May 15, 1927, was $.991, as compared with $.993 for a slightly different group of cities in May 15, 1926. (*Bulletin No. 457*, Bureau of Labor Statistics, United States Department of Labor, pp. 2, 5, and 165.)

[26] See the author's article, *supra* n. 1, at 367, for an attempted reconciliation of this fact with the general principle that wages and working conditions tend to vary directly with the strength of the union.

influence of practically all trade unions was great during those years.

During times of depression, particularly 1913-1915 and 1920-1923, employers reduced working forces. Unemployment was prevalent. Trade unions were seldom able to prevent wage reductions, to say nothing of securing wage increases and improved conditions.

Although business conditions have tended to affect the influence of the Brotherhood in the central station industry in the manner described above, during certain periods other factors have tended to counteract or obscure this effect.

Internal Condition of the I. B. E. W. and Relations with Other Unions. Prior 1903 the Brotherhood was little more than a loose confederation of local unions. The Grand Officers were unable to exercise much control over the activities of its members. Strikes were frequent and of an unorganized nature. Few of them were successful. The placing of the Grand President on a full-time salary in 1903, however, made possible a greater measure of centralized control over the activities of local unions.[27] Since then, the influence of the Union has been helped rather than hindered by its system of government.

Factional disputes within the organization have had a serious effect upon its influence with employers. Almost from its establishment in 1891, linemen and inside wiremen, the two important classes of workers in the organization, disagreed over jurisdictional matters. Open dissention broke out toward the close of 1907. Some months later, a dual organization of electrical workers was formed. It has been estimated that approximately $^3/_4$ of the organized electrical workers in the country at one time belonged to this seceding organization.[28] Though certain other factors of a minor nature were the direct nominal causes of the secession, the traditional rivalry between linemen and wiremen was the underlying cause. Most of the seceders were of the former group. The dispute was not settled until the latter part of 1913. In many sections of the country the attempts of the members of one faction to improve working conditions were nullified by the attempts of members of the other faction to discredit their former brothers. Members of one group often worked as strike-breakers against members of the other group. The influence of the Brotherhood upon wages and working conditions suffered not only during the controversy but for some years after it was settled.[29]

With the exception of a few disruptionary outbreaks of a minor nature and jurisdictional disputes between linemen and wiremen in a few localities, harmony has marked the internal condition of the Brotherhood in recent years.

Though jurisdictional disputes with other organizations have not been entirely absent, relations with these organizations have generally been harmonious, as far as the electric light and power industry was concerned. The Amalgamated Association of Street and Electric Railway Employees of America and its branches has often worked with the

[27] See *Proceedings*, I. B. E. W., 8th Convention, 1903, pp. 196-204. See also the excellent study by M. A. Mulcaire, *op. cit.*, pp. 2-22 for a detailed discussion of the history of the Brotherhood.

[28] *Ibid.*, p. 20.

[29] The strike of electrical workers identified with the seceding faction against the Pacific Gas and Electric Company in 1913 and the strike breaking activities of the other faction focussed the attention of organized labor in general upon the controversy. See *Proceedings*, A. F. of L., 33rd Annual Convention, 1913, pp. 83, 378-381; *Electrical Worker*, July, 1913, pp. 1045-1047; *Stationary Firemen's Journal*, July, 1913, p. 5; *Ibid.*, March, 1915, p. 9; *International Steam Engineer*, August, 1913, p. 83.

I. B. E. W. in securing better conditions. Jurisdictional disputes between locals of the two organizations have seldom been serious. Cooperation has also generally featured the relations between the Electrical Workers and the Engineers' and Firemen's organizations. A rather extended jurisdictional dispute between the I. B. E. W. and the Engineers' Union, which was at its height during the war period, might have been more serious to both organizations had it not occurred at a time when economic conditions favored union labor.[30] Valuable assistance has often been rendered to the Union in its struggles with central station employers, by central labor organizations in various communities.

Special reference should be made to the fact that outside electrical workers, most of whom are employed in the electric light and power industry, are closely related to the building trades through the fact that the International Brotherhood of Electrical Workers contains a larger number of inside wiremen, most of whom are building tradesmen, than linemen and other outside electrical workers. It is difficult to come to a definite conclusion concerning the effect of this relation upon union strength in the power industry. Bitter disputes have sometimes occurred between linemen and wiremen, as we have seen, with resulting evil consequences to each faction. On the other hand, the support which central station employees have received from their brother electricians and, through them, from other building trade unions, has often been of great advantage.[31] The Brotherhood, moreover, has been able to adopt various welfare features, because of its strength in the construction industry, which it would have been financially unable to adopt if the Union had been composed only of outside electrical workers. Most of these welfare features, moreover, were aimed primarily at the latter group of workers.[32] In general, it seems reasonable to believe that the influence of Union workers in the power industry has been strengthened by the fact that they belong to an organization which has achieved a position of great influence largely because of its strength in the construction industry.

Character of the Lineman. A factor closely related to the internal condition of the union has been the character of the lineman, the most numerous type of electrical worker in the central station industry. Since the early days of the industry many linemen have been of the care-free transient type which seldom works longer than six months in one community.

The traveling nature of the lineman, coupled with the rigorous, hazardous nature of his work, has tended to develop a rather independent, irresponsible type of individual whom both employers and union officials have found difficult to control. Many linemen have been prone to strike on the slightest provocation, regardless of existing agreements. Moreover, instead of remaining in the vicinity to assist in bringing such hastily called strikes to a successful conclusion, they have often left town within a few days and moved on to some other part of the country, where, if necessary, in order to secure jobs, they might work for a time under non-union conditions.

[30] The engineers' organization was affected somewhat more seriously by the controversy than the electrical workers, as the American Federation of Labor ruled against it. See *Proceedings*, A. F. of L., 42nd Annual Convention, 1922, pp. 128–130, 404, 410.

[31] In 1919, for instance, all inside wiremen and, finally, all union building tradesmen in Dallas struck in sympathy with the linemen against the Texas Power and Light Company. (*Journal of Electrical Workers and Operators*, July 1919, pp. 633–634.)

[32] These welfare features will be discussed in a later issue of this *Journal*.

Not all linemen have been of this transient type; nevertheless, there have been enough of this type seriously to harass local unions in various sections of the country in their efforts to improve conditions in the industry.[33]

Developments within the Industry, Physical and Economic. Physical and economic developments within the electric light and power industry have been so closely related that it is difficult to differentiate sharply between them. The attempt is made here because physical developments have seemed to work to the advantage of the Brotherhood of Electrical Workers, while economic developments have worked to the disadvantage of the organization, in so far as its relations with the electric light and power industry are concerned.

The term "physical development" is here used to refer chiefly to the remarkable growth of the industry as indicated by the steady increase in the number of miles of transmission and distribution lines.[34] This development has naturally increased the demand for linemen to build and maintain these lines and for other electrical workers to see that the electric current sent over these lines renders satisfactory service. Except during times of financial stringency, particularly 1908, 1913–1915, and 1920–1923, and during the war period, when rate increases were often insufficient to meet the high costs of fuel, copper, and other supplies, and labor, and the industry was financially unable to expand as it should have done, the industry has extended its lines at a remarkable rate. The demand for electrical workers has increased in proportion. Even during the war period, when many companies were financially unable to expand, the demand for electrical workers exceeded the supply. Under such conditions, Union influence over wages and working conditions would normally increase.

The facts show that this did occur between 1903 and 1907.[35] To what extent this influence might have become stronger, had it not been almost entirely destroyed by the secession movement within the Union, can only be surmised. Though the physical development of the industry by no means ceased between 1913 and 1923, its effect upon the power of the Union was somewhat obscured by the 1913–1915 depression, the abnormal condition of the labor market between 1916 and 1920, and the 1920–1923 depression. Since the recovery in 1923 from the post-war depression, the industry has extended its lines to an extent scarcely dreamed of in earlier years. It would be expected that the increased demand for linemen and other electrical workers, which such a program of expansion entails would tend to increase the power of the Union. The facts show that the influence of the union has declined. The explanation of this must be sought in the economic development of the industry.

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[33] An editorial by International Secretary G. M. Bugniazet calls attention to this condition as follows: " . . . Why are there so few outside locals? Why are these few—with only five or six exceptions—so weak? It's mostly because the linemen have been strike-drunk. Now they are reeling from the effects of the drunk . . . Jobs have been struck right and left and in a few days all the strikers have left town for other parts. We have seen and you have seen outside local after local destroyed and job after job lost to all organization—all because of hurried strikes . . . Only a few of your strikes have we favored, because the strike as a general proposition, has proved all too costly for the linemen . . . If the linemen are to get anywhere they must, once and for all, call off their wild spree of untimely, self-destroying strikes." (*Journal of Electrical Workers and Operators*, April, 1925, pp. 305–306.)

[34] The length of transmission lines in the United States increased from 86,290 circuit miles in 1922 to 140,900 circuit miles in 1928. (91 *Electrical World* 32 (January 7, 1928).)

[35] See Tables I, II, and III above.

The term "economic development" is here used to refer chiefly to the absorption of independent electric light and power companies into great consolidated systems. Collective bargaining has been carried on in the industry chiefly through local unions of the International Brotherhood of Electrical Workers and local officials of the electric light and power companies. The bargaining strength of these local unions was often equal and sometimes superior to the bargaining strength of independent electric light and power companies. As these companies became units of centrally-controlled systems with great financial resources, however, their bargaining strength increased, relative to that of local unions. The members of the I. B. E. W. recognized this fact at an early date and attempted to strengthen the bargaining power of local unions by setting up district bargaining agencies to negotiate with the larger electric light and power companies and other large concerns.[36] These agencies were effective in some parts of the country, particularly on the Pacific Coast, where systems had replaced independent companies at an early date. The transfer of authority from local and international officers to district officers, and the use which some of the latter made of this authority, however, aroused the hostility of many members of the Brotherhood. Although local unions may form such district bargaining agencies, if they so desire, they have not been officially recognized by the Brotherhood since 1909.[37] The few attempts which have been made by local unions to form district and state bargaining agencies have been relatively unsuccessful. In some instances, International officers have served as the representatives of a number of local unions and negotiated with the officials of companies employing members of those organizations. In general, however, local unions have continued to bargain with the local managers of power companies, regardless of whether they were independent companies or units of consolidated systems.

The continued fusion of these small companies into systems of companies and the fusion of these systems into larger systems has resulted in the organization of the industry into a small number of systems operating on a national scale. Except in certain cities where local conditions have strengthened the bargaining power of the local unions in some manner, the influence of the Union has declined as consolidation in the industry has increased.[38]

Consolidation has affected Union influence in the industry both directly and indirectly. The direct effect has been the decline in the bargaining power of the local union relative to that of the formerly independent companies. Indirectly, it has facilitated the development of the company union movement and other movements calculated to build up the loyalty of employees to the companies. Only those companies with great financial resources have been able to establish industrial relations

[36] See *Proceedings*, I. B. E. W., 8th Convention, 1903, pp. 204–205; also *Proceedings*, I. B. E. W., 9th Convention, 1905, pp. 22, 311.

[37] See Mulcaire, *op. cit.*, pp. 80–83.

[38] A dramatic instance of the effect of consolidation upon union influence is described in the following letter from a member of Local No. 125, of Portland, Oregon: "This local has declared off the strike and boycott against the Northwestern Electric Co.. . . None of the strikers have secured employment with the N. W. . . . The strike was on for more than a year and a half and an active boycott was waged during a greater part of that period. The boycott was effective to a degree that a concern of less financial resources would have been forced to yield. The recent transfer of the holdings of the Northwestern to the American Power and Light Co. made a continuance of the fight more difficult and against greater odds." (*Journal of Electrical Workers and Operators*, June, 1925, p. 506.)

departments and the numerous employee services, such as stock ownership, pensions, insurance, educational plans, etc., which have almost always been closely associated with employee representation or company union plans. As small, independent companies have become parts of large, centrally-controlled systems, the company union movement has spread to these companies. Some of the members or prospective members of the local unions employed by companies having a strongly developed company union have been attracted to these company organizations and voluntarily dropped their trade union membership.[39]

A larger proportion have left their trade union and joined the company union because they were compelled to do so in order to hold their jobs.

This decline in the influence of local unions has prompted the Brotherhood to two types of action. The first is more or less a continuance of an established method of increasing Union strength. That is, local unions and International officers have embarked on intensive organizing campaigns.[40] The second type of action is of a distinctly different nature than any action taken by the Union in past years. The International officers have been empowered to carry on negotiations with leaders in the industry, looking forward to a national understanding. The desired understanding would amount on the one hand to a recognition of the Union. On the other, it would amount to a recognition by the Union that cooperation should take the place of strikes. Nothing of a definite nature has been accomplished as yet toward securing such an understanding.[41]

Influence of Governmental Bodies. The influence of federal, state, and local governmental bodies upon the power of the International Brotherhood of Electrical Workers in the light and power industry has been exerted in three ways: (1) conciliation and arbitration; (2) fixing electric rates by public service commissions; (3) public ownership. It is evident that the influence exerted through rate-fixing and public ownership is only of an indirect nature.

The Kansas Court of Industrial Relations is the only governmental body which has exercised compulsory arbitration in disputes between central station employers and employees. It did this in only one case.[42] Local unions in Canada have encountered compulsory

[39] Such an occurrence is described in the following statement by a member of Local No. 111, of Denver: " . . . The Doherty Fraternity have made more progress than any of the loyal members of No. 111 had any idea they would make. They have succeeded in drawing away from us a few of what we deemed good, loyal members of the I. B. This just goes to show what a company organization will do if it is not stopped in time . . . Not less than three months ago, we were 100% organized with the Gas Co. Now, we are 75%, giving the Doherty Fraternity about 25% . . . Beware of this outfit, because they are working underground schemes, building air castles for the men, promising things that are absolutely impossible and a lot of the weaker boys are falling for it." (G. W. Roberts, *Journal of Electrical Workers and Operators*, June, 1920, p. 669.) Again, Local No. 81 of Scranton, Pennsylvania, reported that it lost about 100 employees of the Scranton Electric Co. during 1924 primarily because the new superintendent organized a welfare association. (*Ibid.*, May 1926, p. 228.)

[40] Local No. 84, for instance, of Atlanta, reported in February, 1926, that its membership totalled 508, 82 of which joined the union during the month of December. Practically all members of the local were employees of the Georgia Railway and Power Co. (*Journal of Electrical Workers and Operators* 75, February, 1926.) Most of the local organizing campaigns, however, were not very successful. In November, 1927, Local No. 617, of San Mateo, California, reported that the campaign to organize the Pacific Gas and Electric Company's non-union men had met with little success. (*Ibid.*, November, 1927, p. 596.) See *Proceedings*, I. B. E. W., 19th Convention, 1927, pp. 36, 137, 140, 152 for discussion of organizing plans of the Brotherhood as a whole.

[41] See article by the writer, "Trade Union Activities in the Electric Power Industry," *supra* n. 1, at 365, for a discussion of this proposed national understanding.

[42] Union linemen employed by the Topeka Edison Co. were granted a slight increase in wages. (75 *Electrical World* 303, (April 3, 1920.)

investigation of the causes of disputes before strikes were permitted. In general, however, the influence of the Union has been affected only in a very slight degree by either compulsory arbitration or compulsory investigation. Voluntary arbitration has been somewhat more common in the industry. During the war period a number of disputes were submitted to the National War Labor Board. Representatives of State Industrial Commissions in a number of states, Oregon particularly, have sometimes arbitrated disputes over wages and working conditions at the request of unions and companies. In a few instances, city officials and judges have acted as arbitrators, when requested to do so by the contending parties. Conciliatory activities have been much more numerous than instances of arbitration. Between 1926 and 1920 representatives of the United States Department of Labor were active in attempting to prevent strikes and in assisting in the settlement of strikes in the central station industry.[43] Various state industrial commissions have served occasionally as boards of conciliation with some degree of success. Municipal officials, in a few instances, have attempted to conciliate disputes between central station employers and employees.[44] The writer has encountered no case in which a state public service commission has attempted to act on its own motion as a board of conciliation or arbitration. During the war such arbitration and conciliation activities as were carried on by various governmental bodies tended to strengthen the influence of the Union upon wages and working conditions. In recent years, however, instances of arbitration and conciliation have been so small in number that governmental agencies cannot be said to have had any noticeable effect upon the power of the Union in the central station industry.

The tardiness of public service commissions in granting rate increases during periods of rising prices sometimes made it impossible for companies to grant the demands of the Union for higher wages. In this sense, rate-fixing bodies have tended to make it more difficult for unions to increase wages and improve working conditions. On the other hand, some companies have obtained rate increases during these same periods because of increased labor costs. In this sense, then, the commissions have tended to make it easier for trade unions to secure higher wages in the industry. In general, however, it is difficult to trace any direct relation between the rate orders by public utility commissions and the effectiveness of collective bargaining activities by trade unionists in this industry.[45]

The influence of public ownership upon the power of the Union over wages and working conditions cannot be intelligibly discussed without some consideration of the entire problem of public ownership, the relations between publicly owned light and power plants, and the attitude of the Brotherhood toward the question. Consideration of these problems forms an important part of another article by the author, which is to

[43] Among others, this Department assisted in the settlement of strikes during this period at Fort Smith, Ark.; Sharon, Pa.; Los Angeles; Fort Worth, Texas; Youngstown, O.; Newcastle, Pa.; Tulsa, Okla.; Ft. Wayne, Ind.; and Chicago. See 6 *Monthly Labor Review* 468, (February 1918); March, 1918, p. 707; May, 1918, p. 1340; Vol. 1, August, 1918, p. 105; September, 1918, p. 817; Vol. 8, June, 1919, p. 1881.

[44] Efforts of the Mayor of Dallas, State Labor Commissioner C. A. Woodman, and Joseph Meyer, representative of the United States Department of Labor, were all unsuccessful in averting the strike against the Texas Power and Light Co. in 1919. (*Journal of Electrical Workers and Operators*, April, 1919, p. 455.) See, also 8 *Monthly Labor Review* 1516 (May, 1919.)

[45] See the writer's article, "Trade Union Activities in the Electric Power Industry", *supra* n. 1 at 368.

appear in a future number of this *Journal.*

Bearing these factors in mind, the history of the effectiveness of collective bargaining activities by the International Brotherhood of Electrical Workers in the electric power industry can be summarized. Prior to 1903 the weak, decentralized nature of the Brotherhood prevented it from exercising any great influence. Between 1903 and 1908 the influence of the Union increased markedly because of the development of the industry and the centralization of control over Union activities. The secession of a large number of members of the Union between 1908 and 1913 seriously weakened its effectiveness. The industrial depression of 1913–1915 and increased anti-union activities on the part of employers retarded the Brotherhood's recovery from the secession until the spring of 1916; War influences during 1916 to 1920 caused the Union's strength to increase to a phenomenal degree. Between 1920 and 1924, most of the gains of the previous period were wiped away, because of the depression of 1920–1923 and the growth of the company union movement. Since 1924, the influence of the Union upon wages and working conditions has declined steadily, as a result of increased consolidation within the industry and the wide-spread extension of company unions, and all that they represent, which consolidation has facilitated. This latter period has been one of reconstruction, however, as far as the Brotherhood is concerned, as it has frankly recognized its weakness in the industry and has taken steps to regain its strength. Time alone will tell how successful it will be.[46]

[46] The history of the attempts of the Electrical Workers' Union to influence wages and working conditions in the central station industry is treated in much greater detail in Chapter II of the writer's study entitled "Trade Unionism in the Electric Light and Power Industry", see note to Table II.

LAND OWNERSHIP, UTILIZATION AND TAXATION IN BAYFIELD COUNTY, WISCONSIN

By GEORGE S. WEHRWEIN

IN the southern half of Wisconsin agriculture was first and still is the dominant use of the land. Trees were removed so farms could emerge and the sale of wood products and hunting were mere side lines. In the northern third of the State lumbering preceded agriculture. Trees were removed by the sawmill and fires, and the land went through a series of ownerships and utilizations—lumbering, ownership by land sellers, and then agriculture. In the intermediate section of the State logging and settlement occurred simultaneously, and lumbering, clearing and farm-making took a much different form than in the other two parts of the State. It is interesting to note that the best farm wood-lots are found in the intermediate region.[1] Bayfield County is in the northern third of the State where logging preceded farming and where lands are still to be found in all stages of ownership and utilization (Map I).

Lumbering

In 1880 only seven farms were in existence in the County and in the next decade the number increased to but 88. Not until 1900 did agriculture show a substantial development. Meanwhile, lumbering was the chief occupation, reaching its climax about the end of the century. In 1897 Filibert Roth, special agent of the United States Department of Agriculture, made his famous report on "Forestry Conditions of Northern Wisconsin."[2] At that time 957,000 acres of land were still in forests, of which about 475,000 acres were classed as well stocked, but not necessarily virgin timber. In fact, some pine had been cut in practically every township in the North. About 100,000 acres were classed as swamp with cedar and tamarack and about 51,000 acres were in farms with only 2,000 acres cleared. Almost 40% of the area of the County, or 380,000 acres, was already cut-over, waste, or "openings." Sawmills had just entered the southwestern part of the County but the greatest inroads had been made into the region adjacent to Ashland, Washburn, Bayfield and the Lake Superior shore. Pine had been removed from a strip across the County from Ashland to Iron River and about as far south as Grandview.[3]

Thirty years later the land owned by wood-using industries was less than 8% of the land area of Bayfield County.[4] One large plant and a few small sawmills were rapidly removing the remaining merchantable timber. Only a very small part of this 8% was being logged; the rest of it was for sale and much of it had been for sale for a long time. In 1898 white pine stood first among the resources of standing timber in Bayfield County with 2,500 million board feet of merchantable timber. Norway pine was second with 500 million board feet, the hardwoods totaled 450 million and Jack pine and hemlock followed with 400

[1] F. G. Wilson, "The Farm Timberlot," *Wisconsin Agricultural Experiment Station Bulletin*, No. 407, pp. 7-9.

[2] *Wisconsin Geological and Natural History Survey Bulletin*, No. 1 (1898).

[3] *Ibid.*, p. 8.

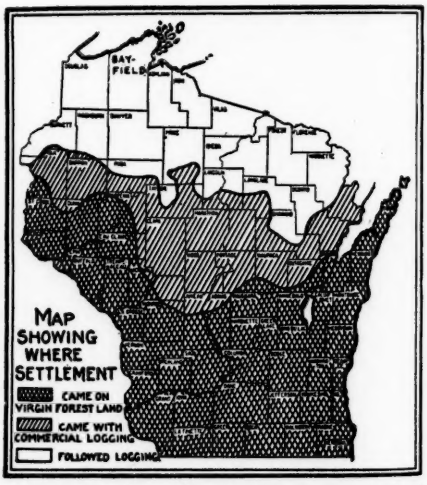
[4] Wood-using industries are lumber companies operating sawmills and "individual loggers" who own small tracts of land which they are logging personally or by hiring some one to do it.

million each. Minor species, such as tamarack, cedar, spruce and balsam together, were estimated at about 320 million board feet. By 1928 the former two species had been reduced to about 4% of the area of the County each and Jack pine to about 7%. Hardwoods with some hemlock and balsam occupied 17% of the area, 31% was in "popple" and white birch, and finally 17½% was in scrub oak or openings. In only a few cases did the foresters find more than a 50% stand in any of their classifications of forest types.[5] These figures are presented to show how a region which in 1898 was said to be "one of the most favored so far as continued pine resources are concerned" had lost its forest wealth in the short space of 30 years. They also show that under present conditions inferior species, such as "popple," birch, scrub oak, etc., occupy over half the area of the County whereas the valuable pines are now in a minor position.

Land for Sale

As lumbering declined, other ownerships and land uses came in. But farming did not follow immediately on the heels of the forests. The fact that 380,000 acres had been cut-over in 1898 and only 51,000 acres had passed into farm ownership shows that the ever widening gap between the two uses had already begun. We do not know how many farmers homesteaded or bought from the lumbering companies, but in perhaps 90% of the cases another type of ownership appeared between that of the lumberman and the farmer. It was the land company, colonization company or the individual land dealer who bridged the gap between forest and farms.[6] This can hardly be called a step in the process of land "utilization," but it is rather a type of "ownership." In 1928 almost 514,000 acres, or 53% of the land area of the County, was classed as land-company or "speculator" land. If the land in estates, the acreage held by mortgage and investment companies, and the land for sale by lumber companies are added to the above, it is safe to say that over 60% of the area of Bayfield County is today land *awaiting a use.*

Land waiting for its final use is in a peculiar position. It is often called "idle" land but this term has been criticized. Cut-over land is growing a second crop of trees but usually the inferior species predominate. The owner rather than the land is "idle," and his purpose is not to *use* land but to sell it. During the period of waiting the land is accumulating carrying costs in the form of taxes and interest charges, and if the owner is actively trying to sell the land, he also has direct selling costs. Mean-



Map showing the relation of settlement to lumbering in Wisconsin. Bayfield County is in the zone where agriculture followed logging. (Courtesy Wisconsin Agricultural Experiment station).

[5] "Land Economic Inventory of Northern Wisconsin—Bayfield County," *Wisconsin Department of Agriculture and Markets Bulletin*, No. 100, pp. 46-7 (1929).

[6] In some cases lumber companies opened land departments or organized subsidiary companies to sell their lands. The function here was different from that of lumbering, however.

while the land is semi-public land for hunters, fishermen, and perhaps even the taking of wood products, if not detected. One land company is attempting to capitalize the sport possibilities of its 50,000 acres lying in Bayfield and neighboring counties by posting its land and offering to sell 40-acre tracts to hunters with hunting privileges over the whole tract. While sportsmen see in this a "scheme to sell worthless land" and a curtailment of their rights, they must admit that the company is within its rights in trying to secure some income from its "idle" lands. If no annual income accrues to land owners holding land for sale in order to make a profit, all costs must be covered when the land is finally sold. When settlement was active and prices of land good, the land dealer generally came out ahead, but since 1920 the owner of undeveloped lands has been in a sorry plight.

The point to be stressed is that this waiting period with its holding and "ripening costs" is inevitable wherever forests are cut as rapidly as they were in northern Wisconsin. Farms cannot be created over night. If we take the rate of development of farm property in Bayfield County for the best decade (1900-1910) as a standard, the increase averaged 6,829 acres per year. Roughly estimating the area of land awaiting farm use as 800,000 acres in 1910 and placing the rate of development at 8,000 acres per year, 100 years would be required to bring Bayfield County into farm ownership. Even if we take only the land suitable for agriculture, the process would have taken 35 to 40 years, which means that, while some land dealers could expect to sell their lands after only a few years of waiting, others must expect to hold their lands for 40 years or more.

Agricultural Land

The next use is agriculture. The rate at which cut-over land was converted into farm land is shown in Table I. The Land Economic Inventory classed 181,866 acres as farm land in active ownership. This figure is somewhat exaggerated by the inclusion of several large tracts used merely for pasturage of cattle, sheep and turkeys. Ownership however, is not utilization, just as the ownership of land by lumber companies does not mean standing timber. The County contained 77,540 acres of cleared land and orchards and 3,862 cleared acres which were abandoned. In other words, 24.2% of the land area of the County was in farm ownership; 8.1% was cleared and in actual use.

The proportion of cleared land to total land in a farm is of great im-

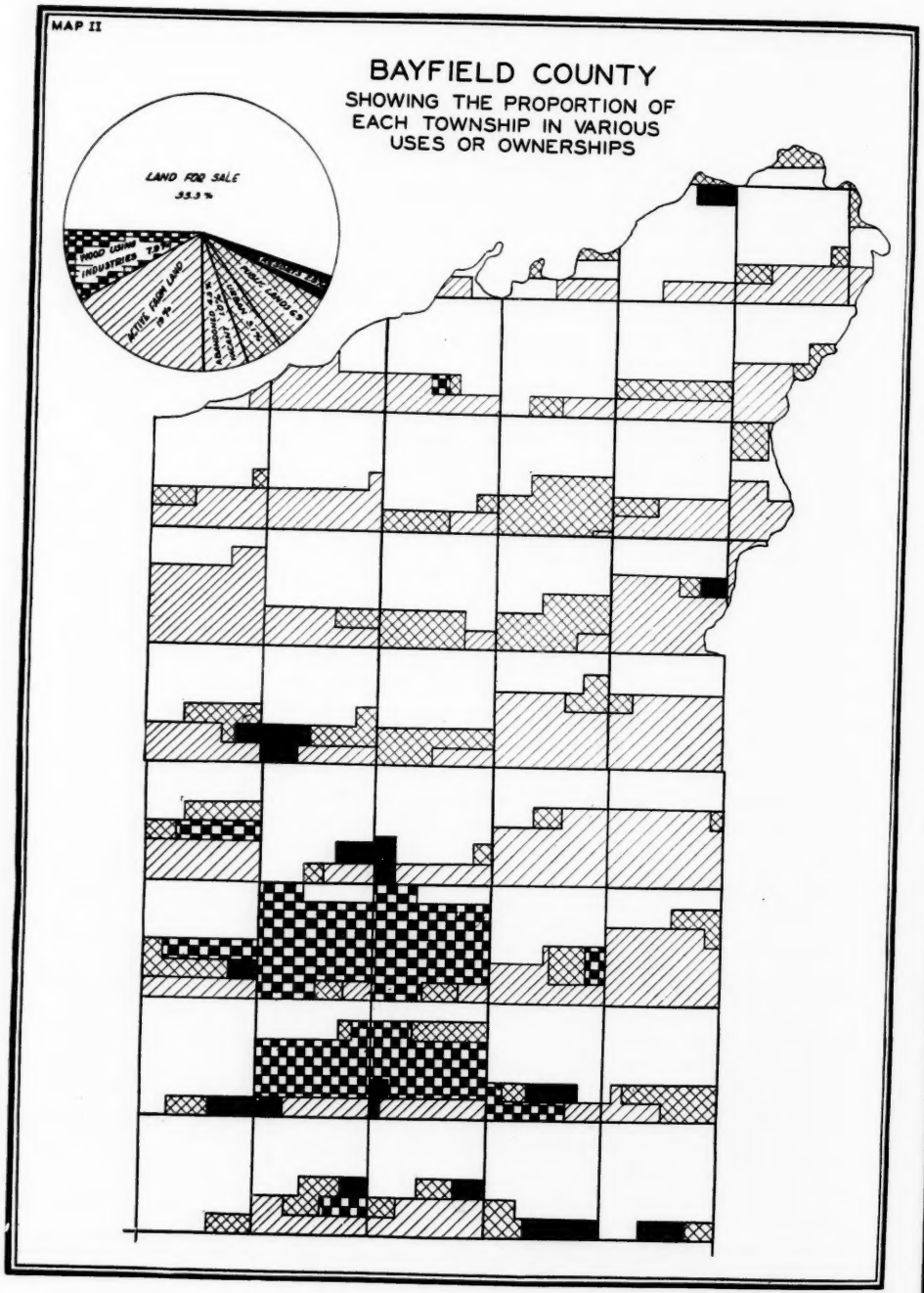
TABLE I. NUMBER OF FARMS, LAND IN FARMS, AND IMPROVED LAND IN FARMS BAYFIELD COUNTY, WISCONSIN, 1880–1929.

United States and State Censuses	1880	1885*	1890	1895*	1900	1905*	1910	1920	1925
Number of farms	7	18	88	218	465	932	1,086	1,791	2,275
Land in farms, acres	1,845	5,331	12,960	51,736	51,827	104,552	120,121	172,496	196,269
Improved land in farms, acres	496	237	1,297	2,653	8,022	14,878	21,661	50,389	.....

Assessors' Reports†	1921	1922	1923	1924	1925	1926	1927	1928	1929
Number of farms	1,891	1,891	1,863	1,893	1,842	1,886	1,859	1,799	1,786
Land in farms, acres	164,500	162,816	162,505	160,077	158,084	158,011	153,710	151,194	152,907

*State Census.

†Each year the assessors of the local towns report the above figures and other data to the Wisconsin Crop Reporting Service. Absolute accuracy is not claimed for these figures, yet there is a noticeable trend downward attributable to the gradual abandonment of farms. The Federal Census figures for 1925 are evidently too high.


MAP II
BAYFIELD COUNTY
SHOWING THE PROPORTION OF EACH TOWNSHIP IN VARIOUS USES OR OWNERSHIPS
LAND FOR SALE
35.3 %
WOOD USING INDUSTRIES 7.2%
ACTIVE FARM LAND 19%
PUBLIC LANDS 6%
3%

portance in agriculture in a new country. The cleared land provides the income; the rest must be carried just as the cut-over land is "carried" by the land dealer. However, in Bayfield County where dairying is important, cleared land does not represent the full productive power of the farm. Partly cleared land and even woodland can be used as pasture to supplement plowable pasture in rotation. In 1925 the Federal Census reported 52,566 acres of crop land (not all harvested) and 97,546 acres of pasturage. Only 4,001 acres were plowable pasture, however; 66,296 acres were woodland used for pasture; and 27,249 acres were classed as "other pasture." Naturally there is considerable difference in productive capacity of plowable pasture, stump land only partly cleared of brush and stumps, and untouched cut-over land or woodland. Woodland, however, may add to the farmer's income by furnishing fuel and merchantable forest products, such as ties, bolts and pulpwood. Another source of income for some farmers is the "resort business." The Land Economic Inventory classes 1,242 acres as "farm resorts," which is a very small area but capable of considerable expansion.[7]

Map II shows that agricultural development is localized. In only nine out of the 52 whole or partial townships[8] shown on this map does farm land occupy more than half of the area of the township.

Abandoned and Vacant Farm Land

However, a fourth stage in the history of land utilization and ownership may be noted. Some of the farm land has become "abandoned"; that is, the owner has deserted the land and has no intention of operating it again as a farm. This abandonment represents a failure in the utilization of the soil for agriculture and in many cases it has meant the complete loss of the farmer's investment or his bankruptcy. Farm abandonment is not a new phenomenon in the North but the present farm depression has greatly accelerated it. It is attributable either to the failure of the settler to adjust himself to life and farming in an undeveloped country or to the fact that he tried to clear and cultivate submarginal land. To these two causes can also be added the policy of locating settlers in widely scattered areas, thereby increasing school and road costs and making community life difficult.[9]

The studies made in other counties in northern Wisconsin show how widespread and general this situation is. In Lincoln County over 17% of the farms were found abandoned in 1926, embracing 31,000 acres, or 5½% of the area of the County.[10] In Marinette County 19% of the farms were abandoned; over half, however, were located in four townships.[11] In Bayfield County 40,912 acres of abandoned farm land were found in 1928, or 4.3% of the area of the County, the greatest concentration falling in three townships. These figures do not give a complete picture of farm abandonment. Only those farms were included

[7] Farm resorts are all properties on which a farmer is also making an income by renting cottages or providing recreational facilities. The acreage is mostly confined to the southeastern part of the county. ("Land Economic Inventory of Northern Wisconsin," *op. cit.*, pp. 78-79).

[8] *Township* is a surveying term and means an area of land six miles square, containing 36 sections. Where the surveyors reach bodies of water, *partial townships* occur. Civil or political *towns* are local units of government, subdivisions of the county. They often correspond in size and shape with the surveyors' townships but may be any area or configuration.

[9] B. H. Hibbard, W. A. Hartman, W. N. Sparhawk "Use and Taxation of Land in Lincoln County, Wisconsin," *Wisconsin Agricultural Experiment Bulletin*, No. 406 p. 13 (1929).

[10] *Ibid.*, pp. 5, 10-12.

[11] "Making the Most of Marinette County Land," *Special Circular*, Extension Service of the College of Agriculture, p. 10 (May, 1929).

which were reported as abandoned by local residents and that meant only those they knew about or remembered. Many farms were abandoned so long ago that the farm buildings have disappeared and brush and young trees have covered all traces of clearing. In one place a pile of brick is all that is left of a school building which once housed 20 pupils. The entire community has disappeared.

Furthermore, it is not easy to define an abandoned farm, for there are many stages of abandonment. In some cases the owner has disappeared; the farm is not cultivated; the hay is not even cut and the buildings are deserted; taxes are delinquent; or the land has reverted to the County. In other cases, however, the owner may still pay taxes hoping to sell the land. In still other instances the farm has reverted to the land company which sold it to the farmer or it is now owned by a mortgage company or bank. These new owners may or may not keep up the taxes. They like to have the farm occupied, if possible, and they rent it to anyone who will occupy the buildings and pay a nominal rent, in some cases just enough to pay the taxes. The large area of land rented in Bayfield County, over 5% of the agricultural land, was rather surprising. The Federal Census of 1925 reports only 3½% of the farms of the County as operated by tenants.

Finally, a large area of land might be called "still born." That is, the owner intended to clear and settle the land but either never came to see the land or left without improving it. Some cleared a few acres or built a shack and then went back to the city. Such land is hardly in the same class as abandoned land but resembles it in many respects.

Abandoned land is a good test of the suitability of the land for farming. If a settler fails here and there, it may be because of his personal deficiencies as a farmer but in the case of wholesale abandonment of a particular area the cause must be sought in the physical factors, such as the soil; or economic factors, such as poor location with respect to markets. The recession in the number of farms and in farm land is also shown in Table I, where the reports of the town assessors to the Wisconsin Crop Reporting Service are presented. Even allowing for the fact that these reports are not accurate the downward trend since 1920 is significant.

Another class of agricultural land is "vacant land," which is land not being operated because the owner is at work in the city or the mines. However, the owners intend to renew farm operations as soon as they have earned money in other occupations. This is an intermediate type of land between active farm land and abandoned farms, and circumstances may finally shift it into one or the other of these two classes. Since the information is obtained from local residents rather than the owner himself, it is not reliable, but does show a unique condition of land use. Some townships seem to contain very little abandoned but a considerable area of vacant land; in others the situation is reversed. This suggests also that the local informant favored one classification or the other in giving information on the abandoned or vacant farms. So in addition to the 40,912 acres of abandoned land there are 9,572 acres of vacant land in Bayfield County. Since we do not know the final disposition of the land, it is difficult to correlate present utilization with physical, personal, or economic factors.

Resort and Other Classes of Land

The attractive scenery of Bayfield, Ashland, and Apostle Islands has been known for a long time. Summer residences and resorts have been established

on many of the inland lakes. The Brule, where President Coolidge spent one summer, is near the western boundary of Bayfield County. By 1928 almost 24,000 acres were in resort property, most of which were in "non-commercial resorts," that is, land not used for income producing purposes.[12] From the standpoint of area only 2.5% of the County is in this form of utilization, but lake frontage is valuable and the improvements often overshadow the value of the land itself. In other words, it is a rather intense form of land use almost urban in character. Even though such lands may not be important from the standpoint of area, they are important as sources of taxes and income to the County.

Railroads, power companies, the Dupont powder company, cities and villages are the other landowners or utilizers in the County and these need not be discussed at length. Public lands, such as state, federal and county lands, cover almost 7% of the land area of the County; of these by far the most important are County lands, which comprised over 6% of the total area in 1929. Practically all of this land came to the County through tax delinquency.

Tax Delinquency

Tax delinquency is a symptom of maladjustment in land utilization and in some respects is also a reflection on the system of taxation. However, tax delinquency brought the land situation to the attention of the public and the recent studies and surveys have been made in response to the need for a solution of the problem.

To understand the implications of tax delinquency a few words of explanation may be helpful. If the owner of a piece of land fails to pay his taxes to the town treasurer by a given date, he is subject to a penalty. After a given time the matter is turned over to the county treasurer and the owner pays the taxes to him subject to an additional penalty. Failing this, the county treasurer is empowered to sell the land for taxes and to issue a tax certificate to the purchaser. The owner, however, can still redeem his land by paying to the private purchaser the value of the certificate plus 15% interest for the time the certificate has run. Formerly it was a profitable business to buy up tax certificates and make the 15% interest because owners were usually anxious to redeem the certificates. But if the owner fails to redeem the certificate after three years, the purchaser of the certificate can take tax title to the land. This becomes a valid conveyance of the property subject to contest on the ground of validity for another three years.

If no private purchaser appears, the certificate remains with the County and after three years the County can take title to the property subject to contest, however, for six years after this time. However, neither the private certificate owner nor the County is obliged to take title to land. Certificates held by the County or by private individuals before title has been taken are said to be "outstanding." Tax certificates left unsold for 15 years become void.

Tax delinquent land can be found in various stages of delinquency with the three parties—the owner, the private purchaser, and the County—in various and sundry relationships. These relationships can become very complicated, as, for instance, if tax certificates on the same land have been purchased by several people or are held by the County and by private buyers.

[12] "Non-commercial resort" land is land used for recreational purposes by the owners. This ranges from a small lake lot with a summer cottage to a large estate of 2,750 acres used as a place of permanent residence. In other cases it is land used for private hunting purposes.

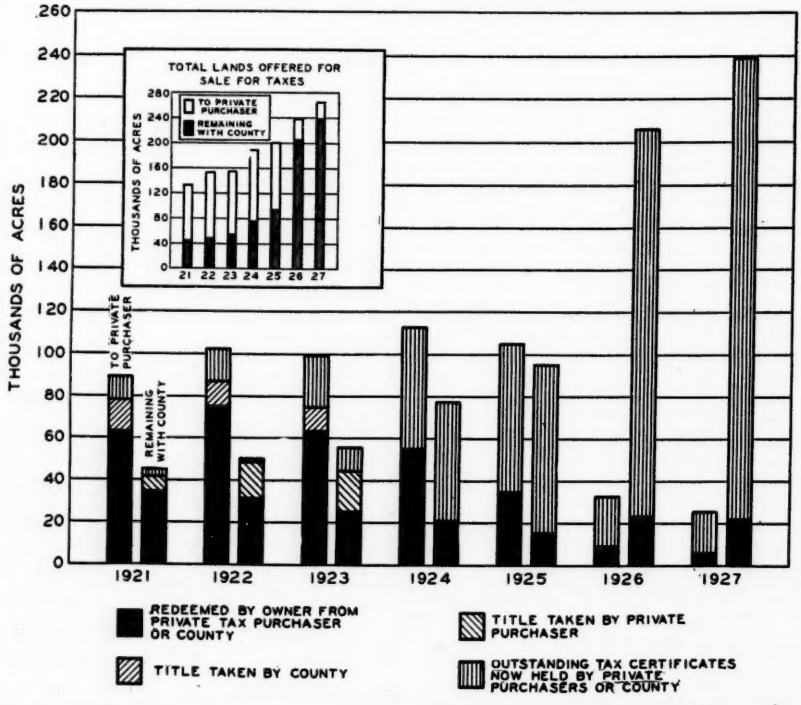
Chart I, based upon figures from a study of tax delinquency in the 17 northern counties, will help to visualize these relationships.[13] In 1921 almost 135,000 acres of land were offered for sale for taxes in Bayfield County, of which approximately 45,000 were left with the County and 90,000 covered by certificates bought by private purchasers. Of these latter lands the owners redeemed over 63,000 acres and the private purchasers took title to about 14,000 acres, leaving approximately 11,000 acres with certificates still outstanding in 1927. This last item is significant, more so in later sales than in this one. More than three years had elapsed and the certificate holders could have taken title to all of the 11,000 acres had they considered it profitable to do so.

Of the 45,000 acres remaining with the County, about 35,000 acres were redeemed by the owners. The County took title to about 7,000 acres, leaving less than 4,000 acres outstanding. As in the case of the private purchasers,

[13] B. H. Hibbard, John Swenehart, W. A. Hartman and B. W. Allin, "Tax Delinquency in Northern Wisconsin," *Wisconsin Agricultural Experiment Station Bulletin*, No. 399 (1928). In the *Bulletin* the figures for Bayfield County were not published separately but were added to and averaged with the others.

CHART I

DISPOSITION OF LAND OFFERED FOR SALE FOR TAXES
BAYFIELD COUNTY, WISCONSIN: 1921-1927*



enough time had elapsed since 1921 so that the County could have taken title to the "outstanding" land. The policies of counties vary in this respect. Many counties do not like to take title to the land; one reason is that land thereby becomes tax exempt and is lost as a part of the tax base. Bayfield, however, has been prompt in taking tax titles.[14]

Tax delinquency is a phenomenon of all pioneer communities. Roth reported in 1898 that 1.5% of the area of the 27 northern counties included in his survey was owned by the counties "in tax deeds and about five times the amount conditionally on tax certificates."[15] In fact, the northern counties are experiencing their second wave of delinquency; the first came directly after the timber was cut. The present situation developed after 1920. Whereas about 135,000 acres were delinquent in 1921 in Bayfield County, almost 266,000 acres were sold for taxes in 1927, a steady, consistent rise during the seven years.

Other factors, however, are as significant as the general increase in the area of tax delinquent land. The attitude of private purchasers is one of them. In spite of the increase of land sold for taxes year by year, the area bought by private purchasers decreased. Whereas in 1922 almost 103,000 acres were bought, in 1927 only about 26,000 acres found favor with private purchasers, leaving an increasingly larger proportion of tax certificates with the County. The attitude of the original owners toward the land is shown by the rate at which they redeemed it from private purchasers and from the County after the certificates had passed to these two agencies. The intent of the law is to favor the owner as much as possible and to make it easy for him to regain his property. After 1922 owners redeemed less and less of their land each year. The amount redeemed from private purchasers in 1927 was only about $^1/_{10}$ of the area redeemed in 1921, in spite of the fact that the area delinquent in 1927 was almost double that of 1921. The amount redeemed from the County has decreased also, but not as much nor as consistently as that redeemed from private purchasers. One reason for this is that counties are likely to compromise with owners in order to get the land back on the tax roll. Bayfield County's abandonment of this policy several years ago has prompted some owners to "come to time." As long as the possibility exists for making compromises, the owners will let their taxes slide, hoping to save interest charges and make a bargain with the County. Such practices are unfair to owners who pay taxes promptly.[16]

The desirability of land ownership is also indicated by the eagerness with which purchasers of tax certificates take title to the land. The study presents the figures for only three years, because tax title can be taken only after three years of delinquency. Nevertheless, fewer tax titles were taken out in 1923 than in 1921. On the other hand, the County's policy of taking tax title to land is shown by the increases of 1922 and 1923 over 1921. In these three years Bayfield County took title to 43,000 acres of land, but by June, 1929, it had taken title to 61,540 acres, or 6.4% of the area of the County. Besides the land actually owned by the County in 1929, the County could take title to an additional 84,770 acres in that year. Based on the then outstanding tax certificates, 46,695 acres were deedable to the County in 1930 and 57,200 acres in 1931. Altogether the County either owned or had

[14] *Ibid.*, p. 22; see also *Bulletin*, No. 406, pp. 6-14.

[15] Roth, *op. cit.*, p. 6.

[16] "Land Economic Inventory", *op. cit.*, p. 87.

claims upon over 26% of its area through tax delinquency.[17]

Outstanding tax certificates represent the residual claimants after land has been redeemed or returned to the tax roll by tax title. Especially significant is the amount held by the County which increased from about 4,000 acres in 1921 to 218,000 acres for 1927. However, the owners have not had the opportunity or the certificate holders the right to take title to the land which has become delinquent in the later years, and therefore the later figures are abnormally high. Nevertheless, the trend is convincing and agrees with that noted in the other northern counties.[18]

It should be noted also that the area sold in 1922 is not *in addition* to the area sold in 1921, nor that the area sold in 1927 is in addition to that sold in 1926, etc. Some of the land in the first year's delinquency appears again the next year because the owner failed to pay taxes in both years. In fact, seven tax certificates may be issued on the same piece of land in the same number of years. There were 22,503 acres of land in Bayfield County of this description. The significant fact, however, was that 42,676 acres appeared on the delinquent list for the first time in 1927.

Tax Delinquency and Ownership

Two points are of interest in this connection: who is contributing to delinquency, and what sections of the County, what soils or natural factors, are contributing most to the delinquency situation. The first question was answered when the ownership of the land was correlated with delinquency. The time allotted to the study did not permit refined correlations but even the preliminary figures tell the story. Some of the percentages, however, are based upon complete calculations.

It was found that about 10% of the land classed as active agricultural land was marked as delinquent on the 1926 tax roll. But this does not give us the complete picture. A special study by Guy A. Peterson of a selected civil town (Pilsen) shows how delinquency worked out on farm land of this community.[19] In this town there were 156 descriptions of 40 acres each, owned by farmers, the rest of the land being owned largely by land companies and "speculators." On 59 descriptions taxes were paid regularly every year during the period 1921-1929. On 26 "forties," or 17% of the total farm land, farmers allowed their land to be delinquent from one to eight times but they paid their taxes before the tax sale. On the other 71 "forties" various forms of delinquency were experienced but the farmers redeemed their lands on 60 descriptions. Tax deeds have been taken on three "forties" by private certificate purchasers; the County has taken title to one "forty" and could take title to four more at the time this study was made. Only three "forties" owned by farmers had unredeemed tax certificates against them. It will be observed that in spite of tax vicissitudes very little land was lost by the farm owners; only 11 descriptions had passed into other ownership or were in danger of doing so. Besides, the owners can still redeem or contest the title in every one of these cases. It has been suggested that liberal credit facilities would help farmers to keep out of tax delinquency difficulties and avoid the penalties and interest that must be paid in redeeming their lands.

The practice of private tax certificate purchasers is also significant. The east-

[17] *Ibid.*, p. 88.

[18] *Wisconsin Agricultural Experiment Station Bulletin*, No. 399, *op. cit.*, pp. 14-16.

[19] "Land Economic Inventory", *op. cit.*, pp. 71-76.

ern part of the town is good clay soil and more or less settled; the western part is in the "Barrens" and still in the possession of land dealers. In this case ownership and soils are rather closely related. In the agricultural section of the town private purchasers bought 118 tax certificates on 40 descriptions during the nine years, some of which were not farm land, however. Ninety-three of these were redeemed by the owners, and only 5 out of the 25 unredeemed certificates were on farm land.

Farm land is income-producing land and can pay taxes out of income as long as these are reasonable and in proportion to income. Naturally, taxes have increased and land values decreased in the North as everywhere else, narrowing the gap between income and taxes. However, the tendency in some localities has been to increase the tax on land which is *not* delinquent and decrease it on land which is habitually delinquent. This tends to shift the burden from the land which does not pay taxes to that which can and does assume its share of the public burdens. "Delinquency in itself is one of the causes of delinquency throwing the tax burden onto smaller and smaller areas, as delinquent lands become greater in extent."[20] How far this is true of Bayfield County cannot be judged unless studies are made of the local taxing units.

Some evidence, however, shows that the tax per acre on the redeemed land, which presumably is also the better land, has risen considerably since 1921, whereas the per-acre tax on land with outstanding tax certificates is about the same as in that year. On the other hand, the local assessors of Bayfield County have not spared the waste and cut-over lands in their assessments. This point will be commented on later.

Vacant farm land has a larger percentage of delinquency than active farm land, but not very much larger, about 13% failing to pay taxes in 1926. Since the owner presumably has some other occupation, he can pay taxes and is willing to do so, because he intends to return to the farm and therefore does not want to lose his property by tax delinquency. Abandoned farm land, on the other hand, is in a different status. Here the owner has lost his interest in the land and has no reason for paying taxes. In other cases the land has reverted to the former owner or is held by a mortgage or investment company. It lies with them whether they care to pay taxes or not. In 1926 over 35% of the abandoned farm land was delinquent. The connection between failure to pay taxes, income, and the relation of the owner to the land are quite apparent in this case.

The land owned by mortgage companies, investment companies and banks, including the Federal Farm Loan Bank, is interesting in this connection. In 1928 more than 15,000 acres were owned by such institutions. Over 6,800 acres in this type of ownership were also classed as abandoned or vacant. Tax delinquency was 55 to 60% on this land in 1926, the highest percentage of any land class in the County. This represents the delinquency attributable to the former owners, however, since the tax figures are for 1926 and the ownership as of 1928.

The problem facing mortgage holders is a serious one. Taxes must be paid in order to keep title to the land but such owners are not in a position to operate the land themselves. They are anxious to sell their holdings which means that there is a large supply of partially im-

[20] *Wisconsin Agricultural Experiment Station Bulletin*, No. 399, p. 23.

proved farms on the market in a region where almost 60% of the County is for sale as undeveloped land. They are glad to rent the farms in order to have the buildings occupied to permit fire insurance to be carried. But it is difficult to get responsible tenants where a good farmer can buy land so easily. As a last resort they rent their farms to neighboring farmers, but this means unoccupied buildings, and exploitation of the land in favor of the farmer's own land. Depreciation of the buildings, weeds, and other deteriorating influences are steadily reducing the value of the farm under such conditions. More important still, the bitter experience with creditors in the past 10 years has dried up the source of credit for the North which is a great hardship to the farmers during the "grubstake" period.

Resort property, being income-producing land, or owned by wealthy people with incomes not dependent upon local conditions, had a very low rate of delinquency in Bayfield County. Only about 8% of the taxes were delinquent in 1926. In the case of the wood-using industries delinquency was practically negligible for the large sawmills and was about 10% on the land classed as "individual logger." Throughout the North, wood-using industries commonly pay taxes on the land covered with merchantable timber but denuded lands are usually delinquent. In fact, in some cases lands are permitted to go delinquent the year preceding the cutting of the timber.[21]

In Bayfield County the leading lumber company paid taxes on all its land, merchantable timber, cut-over and even the abandoned farm lands which had come back to it. However, the holdings of this company are concentrated in four survey townships comprising the largest civil town in the County, the town of Drummond. They own over half of the land in two of the townships and 80% of the other two and therefore pay practically all the taxes in the town, whether they let some land go delinquent or pay on all of it. This may be the chief reason for the absence of tax delinquent land in Drummond.

Finally we come to the most interesting land of all, the "land company and speculator" land. There are 178,088 acres of the former on which 26% of the taxes of 1926 were delinquent, and 335,843 acres of the latter on which 35% of the taxes were unpaid in that year. As has been noted before, these lands are not income-producing lands and taxes are a large part of the holding or carrying costs. Tax payments have been very erratic on land awaiting use. In some cases the owners have paid taxes annually even on land which the surveys found to be very poor from the standpoint of soils, topography, or forest cover. It all seems to depend upon the financial strength and willingness of the owners to pay taxes. The special study of the town of Pilsen corroborates this statement. One of the land companies paid its taxes regularly even though most of its holdings are in the "Barrens." However, 43 of the speculator holdings have already reverted to the County through non-payment of taxes. Owners have seen fit to redeem these lands in only 18% of the cases. Private tax certificate purchasers have avoided the "Barrens" and have bought certificates in the eastern part of the town, concentrating their purchases on farm land and avoiding the unused lands.

The unused and cut-over lands as a class, however, have been a source of public revenue for many years, thereby helping to support local schools, roads and governments. Marsh, cut-over, and waste lands cover more than ½ of the

[21] *Ibid.*, No. 399, p. 22; No. 406, p. 13.

County and agricultural land less than ¼; yet the former is assessed 2.2 times as high as the agricultural land with its improvements, in spite of the higher per-acre assessment of the latter. In only three civil towns is the assessed value of the agricultural land greater than that of marsh, cut-over and waste land; in 10 towns the values are about equal; in all others the value of the waste land exceeds the agricultural land from 2 to 17 times. The town of Namekagon is omitted because it has only a few farms.[22]

The attitude of local assessors and local officials toward waste land so largely owned by non-residents varies in different counties of the North. In Bayfield County the assessors evidently discriminate in favor of farm land in their assessments. According to the *Report* of the Assessor of Incomes for 1928 they assessed farm land (including all unimproved land in the farms) at 86% of its selling value in 1926 and 81% in 1930, whereas cut-over, marsh, and waste land was assessed at 133% of "true" value in 1926 and 125% in 1927. The assessor comments on this situation as follows: "No wonder large areas of cut-over lands are on our delinquent tax lists. It is far more logical to collect a fair tax than to fail to collect an unfair tax."[23]

[22]Above classification is the one used by local assessors who are required to report the acreage and value of land and improvements on three classes of land—agricultural, timber, and marsh, cut-over and waste lands. These classes are not ownership classes, however, and do not correspond to the classes used in the Inventory. Nevertheless, they are significant.

Summary

There is a close relationship between the ownership of land and tax delinquency. Owners who are utilizing the land and who are receiving an adequate income from it are generally paying their taxes or they clear up the delinquency before they lose title to their property. Operated farms, resorts and standing timber belong to this class. Private tax certificate buyers find it profitable to buy certificates on such land. On the other hand, owners of land which is awaiting a use, or those who are not using it, have no annual income from such property. Taxes have to be paid out of other sources of income and are paid or permitted to go delinquent depending upon the financial ability or the willingness of the owner to carry the land until it can be used. Land held for sale, vacant and abandoned farms and, as a rule, the cut-over land owned by lumber companies are in this class. A larger proportion of such lands are permitted to go delinquent and more of them revert to the County than is the case with the lands in use.

[23] *Annual Report of the Assessor of Incomes for Bayfield County*, 1928, p. 3.

INFLUENCE OF SOILS ON LAND OWNERSHIP IN BAYFIELD COUNTY, WISCONSIN*

By CHARLES E. BORN

ECONOMIC geographers and land economists have studied the relation between physical factors and land utilization for some time. Bayfield County, however, being in a pioneer region, presents some new problems in this field. Observation and a study of the facts presented in the Land Economic Inventory seem to show relations between certain physical conditions and certain economic factors. But is the association causal or only accidental? If these relationships can be successfully established, the study will help to guide land utilization in other regions.

It is, of course, impossible in an article of this kind to name all studies which have already been made in this field. Only some of them can be mentioned here. The work of Bonsteel in New Jersey, Peck in West Virginia, Vaughan in New York, Morgan in Connecticut, and of the Michigan Land Economic Survey in Northern Michigan have all indicated correlations between certain soils and certain economic factors.[1] Hartman of Wisconsin, who made a study of the success and failure of settlers in northern Wisconsin,[2] found that farmers on heavier soils made greater progress than those on lighter soils. Most of these studies, however, apply to regions where land uses have become stabilized.

Bayfield County, on the other hand, has only a small part of its land in what might be called the mature uses, such as farms, resorts, etc. Even these uses are in a flux as the abandoned and vacant farms indicate. Over 60% of the land is awaiting a use, being cut-over and waste land largely in the possession of land dealers. The Michigan Land Economic Surveys were made in regions similar to Bayfield County and they deal with much the same set of conditions,[3] but in many respects this study is breaking new ground.

For this reason it was necessary to choose rather arbitrarily a few simple, easily recognized, soil characteristics of common occurrence as the physical factors most likely to have some appreciable influence upon the economic factors studied by the land economists. Soil texture and drainage, the amount of stoniness, and the kind of topography are all well known physical factors likely to have some influence upon land utilization and ownership.[4]

The Physical and Economic Factors

After careful consideration of the work which had been done by the soils men

* This study was undertaken as a project of the Institute for Research in Land Economics and Public Utilities in 1929 under the direction of Professor G. S. Wehrwein of the University of Wisconsin.

[1] J. A. Bonsteel, "Soils of Southern New Jersey and Their Uses," *United States Department of Agriculture Bulletin*, No. 677, p. 78 (October 24, 1918); J. G. Davis, "Significance of Soil Type in Farm Economy," 11 *Journal of Farm Economics* 386-401 (July, 1929); Millard Peck, "Farm or Forest in the West Virginia Appalachians," *Ibid.*, pp. 422–435; L. M. Vaughan, "Abandoned Farm Land in New York," *Ibid.*, pp. 436–444; David Weeks, "Scope and Methods of Research in Land Utilization," *Ibid.*, pp. 597–608 (October, 1929).

[2] Unpublished Ph. D. Thesis, University of Wisconsin.

[3] See Wade DeVries, "Correlation of Physical and Economic Factors as Shown by Michigan Land Economic Survey Data," 4 *Journal of Land & Public Utility Economics* 295 (August, 1928).

[4] See "Land Economic Inventory of Northern Wisconsin—Bayfield County," *Wisconsin Department of Agriculture and Markets Bulletin*, No. 100, Part I, December, 1929.

and of the probable attitude of land owners, especially farmers and settlers, toward the various physical factors designated on the soil maps, the following classification of the physical factors to be considered was developed (Table I).

Three bases can be used to classify the soils—texture (including drainage), stoniness and topography, but in the present discussion only the influence of the six soil groups based on texture will be considered. It was found possible to do this without first eliminating the influence of stoniness and topography because of the way in which the latter factors were distributed over the entire area studied. Their influence, therefore, has been reserved for consideration at some future time.

TABLE I. BAYFIELD COUNTY, WISCONSIN, SOILS CLASSIFIED ACCORDING TO VARIATIONS IN TEXTURE AND DRAINAGE

PRIMARY PHYSICAL FACTORS

GROUP I. Clay Soils
Superior Clay Loam

GROUP II. Loam Soils
Kennan Loam
Superior Loam

GROUP III. Sandy Loam Soils
Superior Fine Sandy Loam
Orienta Sandy Loam
Kennan Sandy Loam
Mason Sandy Loam

GROUP IV. Deep Sands
Plainfield Light Sandy Loam
Plainfield Sand
Bibon Fine Sand
Saugatuck Sand
Vilas Sand

GROUP V. Poorly Drained Soils
Poygan Clay Loam
Poygan Fine Sandy Loam
Dunning Sand
Cable Loam
Sheboygan Clay Loam
Sheboygan Sandy Loam

GROUP VI. Peat and Swamp Land
Yellow Fibrous Peat
Coarse Woody Peat
Fine Woody Peat

*Adapted from Wisconsin detailed soil survey made in 1926. For detailed descriptions of each soil type see *Wisconsin Department of Agriculture and Markets Bulletin*, No. 100, Part I.

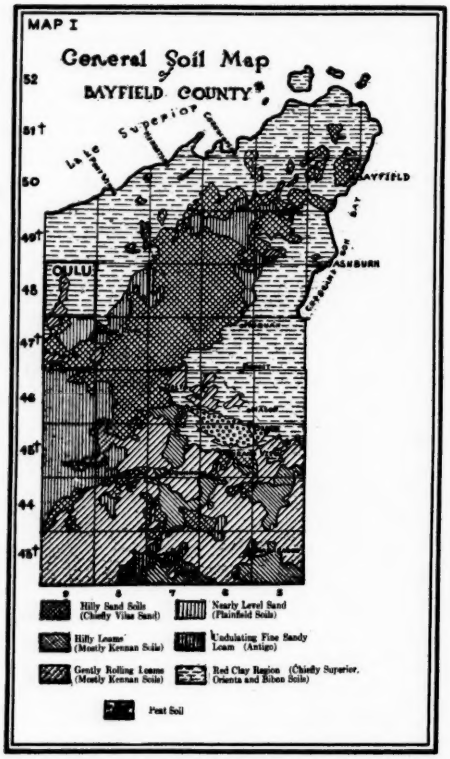
The six soil groups included in the present study are characterized as groups distinguished by variations in both texture and drainage because of the close interrelation which exists between the texture of a soil and its internal drainage. These soil groups were considered of primary importance for two reasons: (1) they represent soil variations which are recognized and plainly indicated in all the detailed soil survey reports and maps already completed by the various states and the United States Bureau of Chemistry and Soils for over 40% of the agricultural area of the United States; (2) they are variations which can be easily recognized by all classes of people.

Space will not permit the inclusion of detailed descriptions of these six soil groups here. As they do not, however, exactly coincide with the classification used upon the General Soil Map of Bayfield County (Map I), a few statements regarding the outstanding characteristics of each group are necessary.

Variations of texture and drainage are mapped by the soils men as phases within types and not as soil types. Theoretically any or all of these variations might occur within each of the principal soil types shown upon the General Soil Map. Actually they do not, but it cannot be stated absolutely that any one textural and drainage group is limited to a particular soil type.

The Clay Loams (Group I), whose most outstanding characteristics are their extreme stickiness when wet and their tendency to form clods and to crack deeply when dry, are found only upon the red clay areas of the Superior Type of soils in this County.

The Loam Soils (Group II) are found mostly among the Kennan Types of soils in the southern part of the County, although small areas are also scattered through the Superior soil region. They



*General Soil Map of Bayfield County showing the distribution of principal soil types. (Courtesy of Wisconsin Department of Agriculture and Markets.)
† The rows of townships marked †, together with Oulu, were the ones included in this study.

are characterized by their lack of any definite textural quality, such as sandyness, stickiness, or peaty fibrousness, and by their good tilth when under cultivation.

The Sandy Loams (Group III) are scattered throughout the area of the gently rolling and hilly uplands of the Kennan Type and adjoining the juncture of areas of Superior Clay Loams and areas of Deep Sands. They might be designated as loams which have a sufficient sand content to be noticeably sandy, but insufficient to obscure their loamy characteristics.

The Deep Sands (Group IV) are found principally in the nearly level areas occupied by the Plainfield Type of soil and in the hilly areas occupied chiefly by the Vilas Type of soil. They are recognizable because composed predominantly of sand particles.

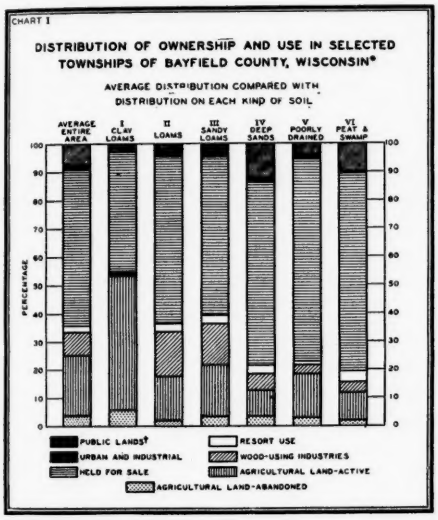
The Poorly Drained Soils (Group V) are not associated with any particular soil type, but are found in depressed areas within the other soil groups, along stream courses, and adjoining areas of swamp land. Their outstanding characteristics are poor drainage and a lack of good tilth.

The Peat and Swamp Land (Group VI) is chiefly located in the Bibon Swamp, but many other small areas occur in most parts of the County outside of the hilly sand region shown upon the General Soil Map. Such land is easily identified by its high organic content, as it is composed almost entirely of decayed or decaying plant residues.

After choosing the soil groups the next question is, what economic facts can be correlated with them? The land economists of the Land Economic Inventory had obtained from the tax rolls of Bayfield County the names of the owners and the description of the land each owned, the assessed value of the land and improvements together with the amount of taxes levied against these values, and information as to whether these taxes were paid or permitted to go delinquent in the year 1926. By utilizing information gathered in interviews with local residents and town officers the data were brought up to date as of 1928 and a classification of ownership was made. The result was a total of 18 different classes of land based on ownership or use.

For the purpose of correlating ownership and use with soils, the following classes were selected from the 18: agricultural land, both active and abandoned, all wood-using industries considered as one class, and one class for

"land for sale," one for urbanized uses, one for resorts, and one for public lands. The facts regarding these lands were secured from the original schedules used by the land economists when making the Bayfield County study (Chart I). These ownership data included information regarding land abandonment and lands reverting to the County because of nonpayment of taxes (County land), and facts regarding the levying of taxes on each description of land and whether these taxes were paid or permitted to go delinquent (Table II).



To make a statistical study of about 1,000,000 acres of land (958,172 acres to be exact) by 40-acre descriptions was too much of a task for the resources and time available in one summer. Therefore, it was decided that the purposes of the study would be satisfied if alternate rows of townships running east and west across the County were chosen. This was done and all townships in the 43N, 45N, 47N, 49N and 51N rows of townships were selected. Later the township 48N, 9W (Oulu) was also included because of its agricultural importance.[5]

The work of the Land Economic Inventory, as carried out in Bayfield County, consisted of a detailed soil survey, and a forest cover survey, as well as the economic survey. The original detailed soil maps of the selected townships were read and each "forty" was placed in one of the six soil groups described above. The descriptions belonging to a given soil group, together with the economic factors associated with each particular "forty," were then placed side by side. These latter data were taken from the schedules used by the land economists. In this way detailed information was reported for 530,000 acres included within the boundaries of the 27 whole or partial townships used as a sample. The data were summarized by townships and later by soil groups, and then expressed in terms of a percentage of the total area of the town or of the soil group.

Correlation of Soils with Economic Factors

Let us first note how ownership and use are distributed in the area studied, for in many cases the classification of ownership denotes the classification of use (Table II). Indian lands are those held by non-taxpaying Indians and are a remnant of the reservation of former years. Urban and industrial lands and remnants of former railroad holdings are not of great importance, for their location is the result of factors outside the scope of this article. Resort lands cover only 12,000 acres of the area studied. The choice of land for resort purposes appears to be influenced largely by location on a stream or lake rather than by soils. Drainage conditions do, of course, have some influence, although in many cases areas of poorly drained and even peat and swamp lands are included within the boundaries of resort property.

[5] See Map 1 for location of the sample townships.

Wood-Using Industries. But when we come to the case of land held by the various wood-using industries, the problem of soil influence upon ownership and use becomes more complicated. This ownership included 44,239 acres in the sample townships. The complicated nature of the problem of ownership for such purposes is especially evident in a county like Bayfield which was probably once completely covered with forest. Naturally cutting had to begin near the lake shore and near transportation facilities. From these points it gradually extended outward into various parts of the County. Thus the location of merchantable timber at the present time is limited to that portion of the original forested area which happens to be cut last. Timberland was selected primarily for the trees and not for the soil beneath. Even so, it is interesting to note that only ½% of the area of the red clay soils included in this study was in use by wood-using industries in 1928, as compared with an average of 8.3% for the whole area and with 15.9% and 14.6% for the loams and sandy loams (Chart I). Such variation suggests possibilities of soil influence and, if the same sort of variation were found to occur in several areas located in regions of varying age of settlement and at various distances from transportation centers, it might be possible to prove some connection between soils and ownership of land for forest purposes. Unfortunately the distribution of forest lands within the townships studied is such that comparisons of this kind cannot be made.

Land Held for Sale. Forest land is today a remnant of a former all-prevailing use or ownership in Bayfield County. The second stage in the series of uses is "land held for sale," or land company and "speculator" land. After the forests were removed most of the land was bought by companies and individuals

TABLE II. DISTRIBUTION OF LAND ACREAGE IN SELECTED TOWNSHIPS OF BAYFIELD COUNTY, WISCONSIN, AMONG DIFFERENT GROUPS OF OWNERS AND DIFFERENT KINDS OF SOIL, 1928.

Groups of Owners	Entire Area Studied*		Distribution Within Soil Groups†											
			I Clay Loam		II Loams		III Sandy Loams		IV Deep Sands		V Poorly Drained		VI Peats and Swamp	
	Amt.	Percentage	Amt.	Percentage	Amt.	Percentage	Amt.	Percentage	Amt.	Percentage*	Amt.	Percentage	Amt.	Percentage‡
All Owners	530,140*	100.0	119,117	23.5	64,200	12.7	137,351	27.1	149,653	29.6	17,971	3.5	16,826	3.3
Indian Lands	1,312	.2	354	.2	.....	.....	878	.6	.....	.....	40	.....	40	.2
Public Lands	39,094	7.3	1,583	1.3	961	1.4	3,108	2.2	17,907	11.9	591	3.2	1,610	9.5
Railroad, Urban and Industrial	7,703	1.4	1,108	.9	1,698	2.6	1,219	.8	2,505	1.6	323	1.7	80	.4
Land Held for sale	291,770	55.0	51,476	43.2	37,935	59.0	77,752	56.6	96,921	64.7	12,904	71.8	11,819	70.2
Resort Land	12,012	2.2	193	.1	1,853	2.8	4,034	2.9	4,527	3.0	197	1.0	662	3.9
Wood-Using Industries	44,239	8.3	600	.5	10,264	15.9	20,179	14.6	8,466	5.6	571	3.1	606	3.6
All Agricultural Land	134,010	25.2	63,803	53.5	11,489	17.8	30,180	21.9	19,327	12.9	3,345	18.6	2,009	11.9
Abandoned Agricultural Land§	20,860	....	7,038	....	1,437	....	5,076	....	5,503	....	560	....	366	....
Percentage of Agricultural Land Abandoned	.....	15.5	.....	11.0	.....	12.5	.....	16.8	.....	28.4	.....	16.7	.....	18.2
Percentage of Total Areas Abandoned	.....	3.9	.....	5.9	.....	2.2	.....	3.6	.....	3.6	.....	3.1	.....	3.1

*Total acreage figures and average percentage were compiled by totaling data given for the selected townships in Bayfield County, "Land Economic Inventory of Northern Wisconsin," *Wisconsin Department of Agriculture and Markets Bulletin*, No. 100, part 3.

†Acreage distribution within soil groups was determined by reference to the original tabulation cards used by the economists to record ownership distribution of every 40 acres in the selected townships when they were preparing the *Bulletin*. As it was not clear to which class of owners some of the land belonged, such land was omitted from the totals of the acreage distribution within soil groups. Hence, the total acreage given by soil groups is somewhat below the total acreage given for the entire area studied.

‡Average percentages of distribution within soil groups were computed from figures of acreage distribution compiled from the original tabulation cards used by the economists to record the ownership distribution of each 40 acres when they were preparing the bulletin referred to in *.

§Average percentages of all agricultural land abandoned were computed using the total acreages of agricultural land as a base equaling 100%. Average percentages of total area were calculated by using the same areas of abandoned land but considering the total areas of land in each group as the base equaling 100%.

whose purpose was resale. Some lumber companies opened their own land departments or organized subsidiary land companies for the same purpose. At the present time over 55% of the County is classed as "land for sale," not including that owned by wood-working industries which is on the market. In the sample townships 291,770 acres were in this class of ownership. A peculiar fact to note is that "land held for sale" forms the same proportion (55%) of the total area of the sample townships as it does of the area of the County.

How much of the land was selected by the original owners because of soil quality we do not know. Individual buyers may have been guided by soils, but as a group they fell heir to the land after the forests had been removed irrespective of any physical or even economic factors. However, farmers, resort owners, and others have been selecting land from the area owned by land dealers; and "speculators" are today holding the remainder, a sort of "residual claimant" group of owners. The distribution of this remnant among different soil classes is interesting. Taking the red clay soils as a group, only 43% of this type of land is today land for sale, whereas over 53% is in farm ownership (Table II). The soils with the largest percentages of land still unsold are the deep sands, the poorly drained, and the swamp land soils.

Agriculture. Third in the series of utilizations is agriculture. How is farm land distributed among these soils? Have settlements been located on the superior lands? The variation in the productivity of the soils of the County was known before settlement became active. Roth in his "Forestry Conditions of Northern Wisconsin" (1898) not only classified the forests, but also the soils. He recognized four chief classes of soils and estimated that Bayfield County had 190,000 acres of clay soils, 390,000 acres of loams, 380,000 acres of loamy and poor sands, and no sandy loam soil. In his opinion the County contained only 100,000 acres of good farm land, and 360,000 acres of medium soils. He estimated that over ½, or 500,000 acres of the land, consisted of poor soils which were suitable only for forests.[6]

Theoretically settlers had the chance to select the best lands. Practically they were not always in a position to do so. They had to select from the land cleared which was most likely to be in the regions close to markets and transportation. Finally, the activities of the land companies must be considered as an important factor in locating farmers. The result of all these forces in placing settlers on the six soil groups may be seen in Table II. In the first place only about ¼ of the sample area was found to be in agricultural ownership. This was a trifle larger than the percentage (24.2%) given for the County as a whole.[7] However, over 53% of the red clay soils is in farms, or twice the proportion for the area as a whole. In only one case among the other soils is the percentage more than 20. On the deep sands and the peat and swamp lands it appears to be only about ½ as great as the average (Table II).

Abandoned Farms. Abandoned farms might be called the fourth stage in the history of our series of land utilizations. Even assuming that the land was originally selected haphazardly, abandonment of land is a good test of the ability of the soil to sustain agriculture, and an indication of the "survival of the fittest." In Table II data are presented for all agricultural land and for abandoned land; the latter is strictly the abandoned

[6] *Wisconsin Geological and Natural History Survey Bulletin*, No. 1, p. 8 (1898).

[7] Land Economic Inventory, *op. cit.*, pp. 72-73.

farms as defined in the *Bulletin* of the Land Economic Inventory.[8] The proportion of abandoned land when used for comparative purposes should be stated as a percentage of all agricultural land rather than as a percentage of the entire soil group, township, or sample area. Abandoned farms do not exist where settlement has never been tried. Hence, certain towns which have no abandoned farms are not to be considered as having superior soils. On the other hand, some towns seem to have more than their share, because they have many farms and have been settled long enough to experience farm abandonment. However, if towns and individual areas are ignored and large soil areas are considered as units with only the agricultural land as a base, these disturbing factors are eliminated.

For the County as a whole over 17% of the farm land has been abandoned, or 4.3% of the area of the whole County. For the area in the sample townships 15½% of the agricultural land has been deserted, or 3.9% of the total area of these towns. On both the clay loam and the loam soils the percentage of abandoned land fell considerably below the average (15½%) for the sample townships, being 11% upon the former and 12.5% upon the latter soils. The percentage of abandoned land was only slightly above the average upon the sandy loams, the poorly drained soils, and the peat and swamp lands, but it was nearly twice as great upon the deep sands where 28.4% of the agricultural land was abandoned. (Chart I and Table II.)

Tax Delinquent Land. Table III presents the facts on taxes and delinquency for the sample area by the six soil groups. Not all land was paying taxes because some of it had already become County property. It will be noted that the average tax per acre reflects the qualities of the land in the soil groups fairly accurately. Since more than half of the clay loams was in farms (53.5%) and the taxes were levied on both cleared and uncleared land and also on the value of the improvements, it is quite natural that this soil should stand first. This factor is of much importance for the other soils which in general had less than ⅕ of their area in farms and a relatively larger proportion of their agricultural area in abandoned farms. Since all these soils lie in more than one township, the assessments and taxes vary greatly. This is a factor to be kept in mind in comparing taxes.

[8] *Ibid.*, pp. 76, 77.

TABLE III. AMOUNT OF TAXES LEVIED AND DELINQUENT IN BAYFIELD COUNTY, WISCONSIN, AND THEIR DISTRIBUTION AMONG DIFFERENT SOIL GROUPS, 1926.

Numbers and Names of Soil Groups	Acreage† Paying Taxes	Average Tax Per Acre	Total Taxes Levied	Total Taxes Delinquent	Percentage of Taxes Delinquent
Total Area Studied	491,046	42.6¢	$209,410	$46,710	23.3%
I Clay Loams	117,534	67.2	79,008	16,641	21.0
II Loams	63,239	45.5	28,821	3,049	10.5
III Sandy Loams	134,243	38.3	51,469	12,367	24.0
IV Deep Sands	131,746	30.5	40,101	11,995	29.9
V Poorly Drained	17,380	37.4	6,507	1,368	21.0
IV Peat and Swamp	15,216	23.0	3,504	1,290	36.8

*The amount of taxes levied and of taxes delinquent was compiled by totaling data found on the original tabulation cards used by the economists when preparing material for "Land Economic Inventory of Northern Wisconsin," *Wisconsin Department of Agriculture and Markets Bulletin*, No. 100, Part 3.

†The acreage paying taxes was determined by deducting the public land acreage from the total acreage given for each Soil Group.

Tax delinquency is a reflection of the owner's regard for his land. If he considers it valuable and has the ability to pay taxes, he will not permit the taxes to go delinquent, or will see to it that the land is redeemed before he loses his ownership. The last column of Table III has some interesting data in this connection. Because so many other factors than soils affect taxes and delinquency, consistency is not to be expected. This column records the percentage of taxes delinquent on the tax rolls as of 1926; it does not give the later history of delinquency. Over 23% of the taxes on the land in the sample townships was delinquent. On the clay loams, more agricultural than the other soils, 21% was delinquent, of which a large part is usually redeemed by farmers.

The highest rate of delinquency is on the peat and swamp land and the deep sands, which have only a small proportion of their area in farms but a relatively large proportion in land held for sale and in abandoned agricultural land. These last two ownerships have a high percentage of delinquency per se. The loam soils, with only 18% in farms and 59% in land for sale, had the lowest rate of tax delinquency. However, this soil group had the largest area of land held by wood-using industries and these owners in Bayfield County had permitted practically no delinquency on the sandy loams.

County Owned Land. The final stage in our utilization series is County owned land. Table II shows the amount and proportion of each soil group in public ownership which is practically synonymous with County ownership except in one or two townships which have some state and federal lands. Since the series of land ownerships started with public land as a part of the public domain and the final stage is public land one might even speak of the cycle being complete, for county owned land is also the last stage of tax delinquency. It represents land which the owners do not care to retain in private ownership either because of its qualities or for personal reasons, as, for instance, lack of income or unwillingness to pay the taxes. On the other hand, since counties do not have to take title to tax delinquent lands, the amount of county owned land also depends upon the policy of the county. In this respect, however, Bayfield County has taken tax title rather promptly on delinquent lands. Speaking of county owned land as a "final stage" does not signify, however, that it necessarily becomes such after being abandoned, which has been called the "fourth stage." The tendency to let lands go delinquent and revert to the county may be found in all ownerships, utilizations, or soil group; it is, however, more noticeable in some than in others.[9]

With these qualifications in mind it will be noted that, in 1928, 7.3% of the sample area was public land, which is about the same percentage as for the County as a whole. However, less than 1.5% of the clay loams and loams, and but 2.2% of the sandy loams were in this class. Poorly drained soils were only slightly higher (3.2%) but the outstanding groups in this ownership were the peat and swamp lands with 9.5% and the deep sands with almost 12% of their areas publicly owned.

The association of economic with physical factors has been done for the County as a whole. To illustrate these associations for smaller units two townships have been selected. The best agricultural township is 48N-9W which con-

[9] See George S. Wehrwein, "Land Ownership, Utilization, and Taxation in Bayfield County, Wisconsin", 6 *Journal of Land & Public Utility Economics* 157-169 (May, 1930).

stitutes the political town of Oulu, settled almost exclusively by Finns. Almost 73% of the area of the town is in farms. All six soil groups are represented in the town. Almost 79% of Group I or clay loam soils is in farms. Abandoned farm land occupies only 3.6% of this township, the soils with the greatest proportion of abandoned lands being the sands and swampy soils. Almost 27% of the area of the town is still land held for sale and the soils having the largest percentage of their area in this class are the sandy loams and deep sands. Publicly owned lands are not important in Oulu, but it is significant that ½ of the swamp and peat areas are owned by the County. There is no federal or state land in the town.

In contrast to this well settled town is the east half of the town of Namekagon 43N-5W, which has less than ½% of its area in farms, all in Soil Group III (sandy loam group). No red clay loam and no deep sand soils are found in this township. With farm land negligible the absence of abandoned farm land is not surprising. Almost 90% of the land is for sale which means that nearly 100% of every soil class in the town is held in land company or "speculator" ownership. The town contains over 1,600 acres of resort land, for which no detailed table was made. Over 4% of the area of the town is in public land, consisting of 320 acres of County land, 522 acres of state, and 69 acres of federal land. All public land is confined to the peat and swamp soils. The large proportion of state and federal lands seems to indicate that these are left-overs after private purchasers made their selection on the better lands. It is interesting also to note that the swamp land seems to have been the first to revert to County ownership.

Summary

In presenting any conclusions the writer feels most keenly the limitations imposed by the necessity of having to develop them from evidence obtained within the limits of a relatively small area and applicable to conditions as they existed at one definite time within that area.

The results obtained reveal, rather clearly, a tendency for certain kinds of ownership to become concentrated on certain kinds of soil. Such appears to be true of the ownership of the clay loam areas for agricultural purposes within the territory under consideration. These lands have gone rather quickly into agricultural use after the timber was removed from them. The preference of farmers for these soils and the greater degree of success attending their use are both indicated by contrasting the amount of land held for sale and the percentage of farm land abandoned in clay loam areas with the corresponding figures for each of the other kinds of soil.

Ownership of land for purposes of sale is concentrated in part upon areas which are in a transitional stage of economic development, such as that which must follow removal of the timber crop from any given area, and in part on areas whose future economic utilization is uncertain. The concentration of this type of ownership upon the loams of Bayfield County appears to be connected with the transitional stage of economic development, in which the lands are passing from ownership by wood-using industries to ownership for agricultural and resort purposes; whereas the concentration of the same type of ownership upon the deep sands, the poorly drained, and the peat and swamp lands appears to be attributable to uncertainty regarding the future utilization of these lands.

Public ownership of land appears under two sets of conditions. State and federal ownership of land is concentrated for the most part in regions where settlement has not yet developed. County ownership of land appears to become concentrated in areas where owners have become discouraged and allowed their titles to revert to the County through non-payment of taxes. This latter condition is especially true in connection with the ownership of public lands located upon the deep sands, and the peat and swamp lands of Bayfield County.

In so far as other areas are similar in soils and climate to Bayfield County, similar correlations between soils and economic factors may be expected, and the findings of this study should therefore be of interest to persons who are dealing with administrative problems connected with ownership, utilization, conservation and taxation of undeveloped lands.

THE FARE PROBLEM OF THE ATLANTA STREET RAILWAYS

By JAMES M. WRIGHT

THE street railways of Atlanta, roughly like spokes of a wheel, radiate from a common hub to points lying two to eight miles distant. The history of their development may be divided into two periods: the first, ending in 1902, was one of independent and partly competing lines; and the second, beginning with the Consolidating Ordinance (1902), was marked by unification of all lines into one system and monopoly control. The financial history, however, falls conveniently into three periods. The first of these, ending about 1903, was characterized by speculative overbuilding and financial reverses;[1] the second, ended by the World War, was a period of comparative prosperity; and the third, or post-war period, has been a time of straitened circumstances.

The Atlanta Street Railroad Company early operated cars in several streets of the city. An ordinance of 1869 limited its fares to 20 cents per passenger on a "through line" and 10 cents on a "half line."[2] As population grew, other lines were built. A franchise grant to the Metropolitan Street Railroad in 1882 referred to conditions and limitations said to have been laid down in 1877 in two other grants[3] whose exact provisions are not to be had from extant Council records. Again in 1899 a regulatory ordinance referred to an obscure grant of May, 1891. This last measure limited the fares to which it applied to a maximum of five cents between the hours of 5:00 a. m. and midnight and 10 cents at other hours.[4] But the Consolidating Ordinance of 1902, under which the Georgia Railway and Electric Company was permitted to "consolidate, unite and merge" the properties, privileges and business of all street railways in the City, bore no fare-fixing clause. It did, however, require the issuance of a free transfer on request of a fare-paying passenger.[5]

Lines of the city system were extended to several suburban communities. Two of these, one leading to Decatur and one to College Park, have attracted the special attention not only of operators and patrons but also of the Public Service Commission and the judiciary of the State of Georgia. As early as 1890 the people of Decatur were served by cars operating over a route substantially the same as that of the present South Decatur line.[6] Within the next decade two more lines were added, each with a loop calculated to bring its service near to every resident of North Decatur. The franchise of the first of these lines was granted to parties who soon assigned it to the Atlanta City Street Railway Company.[7] The other grant in 1899 allowed its holders to construct a loop which in some places paralleled the older loop. To save friction the new entrant was required at its own expense to set the

[1] *Proceedings* of Georgia Railroad Commission on petition to re-adjust rates, 1918, pp. 673, 674. Below this document will be referred to as *Proceedings* of 1918.

[2] *Minutes* of Atlanta Council, vol. 5, p. 480.

[3] *Ibid.*, Book 10, p. 53.

[4] *Atlanta Ordinance Book*, vol. 5, p. 497, secs. 6, 8. Cf. *Aldermanic Minutes*, vol. 7, pp. 231, 232.

[5] *Atlanta Ordinance Book*, vol. 5, p. 639, secs. 1, 11. Cf. Review of these grants in *Georgia Railway and Power Company v. Railroad Commission of Georgia*, 149 Ga. 8 (1919), and history of railways in Beeler, "Inventory and Appraisal," Georgia Power Company, 1924, pp. 7–13.

[6] Cf. Decatur *Council Minutes*, Book A, p. 217.

[7] *Ibid.*, pp. 233–34, 240, 258, 260, 263.

parallel tracks as nearly as possible equidistant from the curbstones, the side of street to be occupied by each line being specified.[8]

These proceedings threw a trump card into the lap of Decatur. The first phase of the new situation was competitive, its result a bidding for the favor of the town. The second phase, developed in 1902 immediately after the acquisition of all three franchises by one company, was non-competitive, nevertheless contentious.[9] For reasons that seemed good to the new owners it was decided to abandon the service and remove the tracks of the older loop. Work to this end was begun but quickly halted by a court order issued on petition of the Town authorities.[10] Exchange of views resulted after two months in the compromise agreement of March 7, 1903. This arrangement allowed the Company to abandon the one loop and remove the tracks, and in exchange for that permission obligated it (1) to relinquish all rights it held of the Town as successor to the franchise authorizing establishment of this loop, (2) to provide "better street car facilities upon another . . . street railway between . . . Atlanta and . . . Decatur," and (3) solemnly to covenant that it would "never charge more than five cents for one fare upon its main Decatur line . . . for one passenger and one trip upon its regular cars" operating in either direction between the Atlanta and Decatur termini.[11]

College Park, nine miles out, was also a growing suburb. It gained street railway connection with Atlanta under its franchise grant of 1901[12] and, when in 1905 permission was asked to install double-track, gained also a proviso that the fare to and from Atlanta should be five cents.[13] Without transfer privilege between this and other lines, however, the community was not on an equal basis with other favored suburbs. A well-timed argument based on an alleged, undue discrimination against this Town gained for it this privilege also.[14]

In this recital certain facts stand out clearly: (1) in a wide area, over radii as long as nine miles, the five-cent fare prevailed; (2) between the different lines a free transfer system obtained;[15] (3) on two of the lines the fares on the longer hauls were limited by contract provision.

I. Corporate History

The history of the street railway fares of the last decade can be best understood by considering the corporate alliance of the railways with other utilities. The merger that in 1902 created the Georgia Railway and Electric Company took over not merely the electric railways but also other properties which were used to supply current for lighting and power, and steam for heating

[8] *Ibid.*, pp. 366, 370. Referring to grant of rights in one street, Council used the words "if any we have." *Ibid.*, vol. 4, pp. 155–156 (1925).

[9] *Ibid.*, Book A, p. 494, and vol. 4, p. 155. The new owner was the Georgia Railway and Electric Company.

[10] *Ibid.*, book A, p. 483.

[11] *Ibid.*, pp. 494–98. These fares were also to cover service over the loop. The route for the line to Atlanta was specified and double tracks were to be built within five years. Provision was made for free transfer to and from any point on any connecting line in Atlanta. Cf. also *Georgia Railway and Power Company v. Town of Decatur*, 152 Ga. 143, 146, 147 (1921), and 153 Ga. 330, 336 (1922).

[12] Fulton Superior Court, File No. 65791, Petition of Mayor and Council.

[13] *Ibid.*, p. 3, and Exhibits A and B. See also Letter of P. S. Arkwright to Mayor and Council, April 8, 1919.

[14] This concession to College Park was later declared to be "not sound . . . bad business; . . . done because it didn't amount to very much and because the people wanted it." (*Proceedings* of 1918, pp. 230–31).

[15] Exceptions to this seem to have been confined to such as would avoid returning the passenger to a point too near that of original departure. Cf. Decatur *Council Minutes*, book A, p. 497, and Atlanta *Ordinance Book*, vol. 5. pp. 639–44.

buildings.[16] Eventually the stocks of the Atlanta Gas Light Company and the Atlanta-Marietta electric line were acquired, the electric line to Stone Mountain built,[17] and plants for generating electricity by means of water power and steam power, transmission and distributing systems, city street railways and gas properties were erected or purchased in other parts of the State of Georgia. In 1918 the Company served 46 municipalities[18] and by 1927 that number had been increased to 162 and was said to cover two-thirds of the State. A comparison of its business with that of other local utilities of Georgia is offered in Table I. Dependence upon its services

TABLE I. SHARE OF LOCAL UTILITIES BUSINESS OF GEORGIA DONE BY GEORGIA RAILWAY AND POWER COMPANY IN 1918 AND 1927*

Item	1918		
	All Companies	G. R. & P. Co.	Percentage G. R. & P. Co.
Gross Earnings	$16,259,936	$ 7,885,983	48.49
Net Operating Revenues	6,585,892	3,606,212	54.70
	1927		
Gross Earnings	$32,188,905	$18,231,877	56.60
Net Operating Revenues	15,677,083	8,634,426	55.07

*Data from 46 G. R. C. R. 469–70, and 55 Public Service Commission 23–24.

was such that the suspension or impairment of its operations would have seriously handicapped many communities, Atlanta most of all. In the course of its growth the structure and name were also changed. In 1908 appeared an allied group styled the Georgia Power Company [19] which was succeeded in 1912 by the Georgia Railway and Power Company. The latter leased all properties of, and rendered inactive the Georgia Railway and Electric Company. On March 18, 1912 the new organization began its career as an operating company.[20] In 1927 occurred a more complete merging again under the name of the Georgia Power Company.

II. Conditions Influencing Costs Prior to Fare Cases

We return now to the fare problem of the railway. The five-cent fare was continued until 1919 and both patrons and investors accepted it without complaint until the last two years of its term. But in the years following 1915 costs and revenues were seriously affected by changing economic conditions and as a consequence the long-dormant fare question became a burning issue.

Economic changes followed each other in rapid succession and adjustment to new conditions had soon to give way to re-adjustment to other new conditions. Precision would, no doubt, have required numerous changes in car fares in order to keep abreast of other changing circumstances and, but for public frowns, they might have been made. As it was, three changes came within a decade and each was accompanied by a voluminous statement about costs and revenues. Certain of these items and groups of items assumed such prominence that a brief appraisal of them seems appropriate before taking up the larger aspects of the problem.

Rental of Properties. A certain prominence was given by Company spokesmen to the rental paid to the Georgia Railway and Electric Company for the use of its properties. By the terms of the lease this payment was to be sufficient to cover interest and sinking fund charges on the bonds of the lessor and to afford also dividends of 5% on preferred stocks

[16] *Georgia Railway and Power Company v. Railroad Commission, supra*, n. 5, at 8.

[17] *Proceedings* of 1918, pp. 142–43.

[18] *Ibid.*, pp. 59, 60.

[19] 37 G. R. C. R. , 139.

[20] Cf. 39 *Ibid.*, 353, 361; 40 *Ibid.*, 333–34; and *Proceedings* of 1918, pp. 142–44.

and 8% on common stocks.[21] The total payment for all properties in 1918 was $1,605,572 and the share of the Atlanta railways was $1,327,446,[22] which was equal to 64.1% of the entire operating expenses of the railways. As a contract obligation it was a basic charge to the operating Company which had to be paid, else the leased properties would be forfeited. Admission was made that, if the amount were exorbitant, the Company could not claim the whole of it as legitimate expense in establishing a basis for reasonable fares. But under close questioning by a Railroad Commissioner its fairness was firmly asserted[23] and after the hearings in the first fare case it was not much emphasized.[24] Although the rental increased somewhat, its changes failed to keep pace with increasing revenues and its relative importance declined from year to year.

Improved Service. One cause of increased expenses was the demand for better service, commensurate with the improvements in transport technique which have marked the last quarter century. An instance of this demand was the readjustment of a terminal in Decatur which entailed expense but did not "add a penny to the revenue of the company."[25] Also patrons demanded service not merely in the waking hours but also between 10:00 p. m. and 6:00 a. m., and for cars to ride in they could be content only with types that were "better-looking. . . , better constructed . . . , roomier . . . , protected" and in season better heated.[26]

Motor Car Competition. Then came the competition of the motor car. It affected not only the numbers of potential street-car passengers but also the class of traffic which the street railways carried. It competed for the choicest and least burdensome part of the business, the "short" riders, leaving the "out-lying and non-paying" part to the railways.[27] In 1923 the motor car alone took from the street cars business estimated at $400,000 to $500,000.[28] Furthermore, it caused much expense by congesting the streets, disrupting the street-car schedules, making more cars necessary for a given amount of service, causing added expense for inspection and supervision, and increasing the number of accidents and damage suits.[29]

Track Construction Costs. Prominent also were the costs of building tracks and of sharing in paving projects. The two were not quite separable. The outlays for track building, always appreciable, grew on account of the double-tracking of single-track lines and of the improved type of structure which raised the cost per rod covered. Track mileage increased as follows:

	1905	1918	1920	1927
Single Track	72	68	68.324	58.582
Double Track	70	150	157.840	175.722

Moreover, this construction work was greatly affected by municipal improvement policies. The citizens were demanding well-laid, hard-surfaced pavements including streets traversed by railways, and in planning the projects the cities were governed less by the condition of existing facilities than by the desire for modern street pavements. As a result, unexhausted base and track were frequently torn up and replaced by the approved deep concrete setting

[21] *Fulton County Deeds*, Book 293, pp. 520–21.
[22] *Proceedings* of 1918, pp. 145, 198. Cf. 46 G. R. C. R. 442.
[23] *Proceedings* of 1918, pp. 204–05.
[24] Hearing of 1920, pp. 508, 669.
[25] *Proceedings* of 1918, p. 185
[26] *Ibid.*, pp. 213, 214. Cf. Hearing of 1920, p. 843.
[27] Beeler, "Report on Local Transportation," p. 47.
[28] Hearing of 1927, pp. 669, 695.
[29] *Proceedings* of 1918, pp. 214, 215.

and heavy rails at the Company's expense. That expense, it was alleged, was sometimes twice as large as the mere share of the cost of paving.[30]

Before 1919 the practice in financing pavements was to allot as the railway's share the cost of a strip 16 feet wide for double-track, 11 feet wide for single-track; and of the remainder "one-third to the city and one-third to the property owners on each side." Accordingly, in a street 40 feet in width from curb to curb the railway's share for a double-track was 40% and for a single track 27.5% of the total cost.[31] In 1919 an Act of the Legislature provided that, on petition of the holders of more than 50% of the abutting property, the City would pave a section of street and assess the whole cost upon the property holders, save that where a railway ran its share should be as before.[32] This Act took off the lid. Paving ventures long delayed by legal inertia and new ones previously unthought of sprang up like hydra heads. An example was the Juniper Street project. Juniper Street was the site of a car line; another car line lay one block away on each side. The Company desired to withdraw its poorly paid service from that street and tear up the tracks. It even offered to pay a share ($25,000) of the assessment for the permission. Instead it was compelled to renew its tracks and pay its portion of the paving bill, totaling about $75,000.[33]

Table II gives data relating to the railway's investment in street pavements. No doubt at times the railway franchises seemed to be the captive bear possessed of insatiable appetites for treasury funds; but, on the other hand, the long-run effects of substantial, permanent construction, at least on the more used lines, although involving heavy initial outlay, have probably been cost-saving.

TABLE II. PAVING COSTS PAID BY THE RAILWAY AND VALUATION OF ROADWAY AND PAVEMENT IN RATE-MAKING VALUATION.*

	1914	1919	1920	1922–26
Accrued Paving Accounts.....	$ 12,381	$174,874	$ 238,208 (1st 6 mos.)	$ 95,235 (An. Ave.)
Valuation, Track and Roadway...	$5,098,294 (1912)	....	$11,034,176 (1921)	.....
Valuation of Pavements for Rate-Making.....	.....	.....	.....	$4,000,000 (1926)

*Data from *Proceedings* of 1918, pp. 195, 198, 199. Hearing of 1927, Exhibit No. 2 of Georgia Power Company, and Report of Lucas and Luick on Physical Property and Business, and Opinion and Order of Public Service Commission, 1927, p. 11.

Traffic Density. The third factor affecting expenses was distance. The population of the area served was scattered. Its average density was so low that on either an outbound or an inbound run a street car filled with passengers but once, if at all. The result was a usual lightness of daytime traffic with peak demands in the morning and evening rush hours.[34] The provision for handling business was well told in 1918 in these words: "We have been extending the lines from year to year, spreading them out . . . The street railroads in Atlanta are excessive, compared to ordinary cities, the lines are very long." Attending circumstances, partly consequences, were striking. By transferring between connecting lines a maximum ride of 18.23 miles could be had for five cents.[35] Another aspect of the problem is shown in the ratio of mileage of track and number of cars to unit of population

[30] *Ibid.*, pp. 212-13.

[31] *Ibid.*, p. 184, and cf. pp. 422-23,393-94.

[32] Georgia Laws, 1919, No. 318, sec. 1.

[33] Hearing of 1920, p. 197. A witness said, "Of outlays amounting to $467,746 in one year the Company initiated those for only $54,000 (p. 200)." Paving Juniper Sreet cost $25,204.

[34] Beeler, "Report on Local Transportation," pp. 40, 136. In 1924 Beeler found that in ordinary forenoon hours 168 cars sufficed, in afternoon 187, but rush hours required 311 in morning and 316 in afternoon with 14 trailers added in each case.

[35] *Proceedings* of 1918, pp. 211, 212.

which was relatively high.[36] The average length of run one way, as disclosed in the survey of 1924, was 6.42 miles; that of the ride of the fare-paying passenger 3.4 miles; and the number of passengers per car-mile covered 5.3.[37] Population was growing apace; the number of fare-paying passengers in the period 1911–1926 is shown in Table III. Patronage of

TABLE III. NUMBER OF PASSENGERS PAYING FARES ON ATLANTA RAILWAYS.

Year	Passengers	Year	Passengers	Year	Passengers
1926	75,901,000	1920	77,284,154	1914	56,644,000
1925	74,596,000	1919	76,804,565	1913	57,401,000
1924	72,469,000	1918	70,575,593	1912	54,345,000
1923	75,518,700	1917	59,228,227	1911	50,235,000
1922	73,255,200	1916	53,685,000	....	.....
1921	73,611,786	1915	52,650,000	....	.....

the railways not only failed to keep pace with population, but its absolute level fluctuated and was lower in 1926 than it had been in 1919.[38]

Now total cost of operation, it was contended, was based upon number of car-miles, i. e., distance covered in runs regardless of number of passengers carried.[39] Unit cost, i. e., cost per passenger-mile, however, depended also upon density of traffic and under given conditions was, when five passengers rode in the car, just twice what it was when 10 rode. Density and distance affected this unit cost in opposite ways. Density, although varying as between different hours and different lines, was greater on every line within 2.5 miles of the hub than outside of that zone. Most cars ran to points, some to far points, outside that zone.

TABLE IV. EARNINGS AND EXPENSES PER CAR-MILE, IN CENTS, 1920–1924*

Item	1920	1921	1922	1923	1924
Operating Revenue.....	36.085	38.322	38.148	38.174	36.287
Operating Deductions...	29.224	30.970	31.860	32.795	32.227

*Beeler, "Report on Local Transportation", p. 104.

As they proceeded, discharging passengers from point to point, density grew progressively smaller, while distance and its consequent cost grew larger. As population spread out, the average length of haul increased, thus exalting distance and dwarfing density. With a sufficient number of passengers, or of revenue from fares, a car operated one mile at a flat five-cent rate paid expenses. With enough more passengers it either yielded a profit or was able to run somewhat farther and still pay expenses. No doubt the denser traffic has paid well every year and the lighter has entailed deficits of varying degrees. The average return has determined whether the whole average cost was covered. There was a limit to the carrying capacity of the car and therefore to the distance it could run and still pay expenses on a flat five-cent fare.[40] Probably that limit was passed in Atlanta toward the end of the war period and, if so, the following statement made in 1918 had a sound basis: "Street railroad service cannot be furnished under the conditions in Atlanta in normal times at a flat five-cent fare and pay its way, it can't be done."[41] The same things have no doubt held true also, though for

[36] Hearing of 1927, p. 604. Cf. also document among exhibits of this hearing, *Bulletin* No. 163, American Electric Railway Association, "Street Railway Fares in American Cities" (October, 1927).

[37] Beeler, "Report on Local Transportation," pp. 49, 106. One hundred fourteen cities were reported as having an average of 6.7 passengers per car-mile and Detroit, Michigan, as having 8.94. Cf. Hearing of 1927, p. 493.

[38] Beeler, "Report on Local Transportation," p. 102, and Hearing of 1927, pp. 524, 529.

[39] *Ibid.*, p. 494. No doubt this was true, since with a given plant, equipment, management and man-force there was a minimum below which cost per mile could not easily fall.

[40] *Proceedings* of 1918, p. 211. As a corollary it may also be said that, no matter what the traffic density, a limit must have been reached at some point in the increase of average distance haul beyond which the five-cent fare could not cover the cost. It would have been reached sooner with light than with heavier traffic. The contrary of either of these propositions seems hardly tenable.

[41] *Ibid.*, p. 215.

longer distances per fare, of the recent fares in excess of five cents. But even so the question arises whether any such failure was the result of distance alone.[42] Other causes will be discussed later.

Changing Prices. Finally, changing prices acted as a cause of changing costs. The movements of prices in the war and post-war periods have been fulsomely presented elsewhere. For that reason only a minimum review need be given here. Table V gives index numbers of the changes of prices of commodities in general, of materials and supplies of the kinds which were much bought by the railways, and of the wages paid to laborers employed on the system. The bases are as of the years 1913 and 1915.

The moderate changes of the first year of the World War were succeeded by the quick upturn which initiated the price revolution. Special attention should be called to the rise of the arithmetical average index of 13 listed commodities to 181.8 in 1918 and to 232.1 in 1920[43] and to the rise of the wage rates, many of

[42] Cf. *Ibid.*, p. 506. In the hearings the question arose whether the short-distance business in the City yielded a profit. The manager had "never figured it out," but his declaration (p. 228) to the effect that zone rates seemed to make fares accord with costs, no doubt betrayed the major premise of his reasoning on the subject. In 1927 the City Attorney of Atlanta persistently emphasized the probability of high cost of light traffic in the areas more remote from the hub. (Hearing of 1927, pp. 470, 473, 475, 476.)

[43] Cf. Opinion and Order of Railroad Commission, 1920, pp. 9, 10. Indexes for the first months of 1920 ran as high as 343.7 for lumber and 360 for cement, as shown in data used by the Railroad Commission. The index numbers of the Bureau of Labor Statistics show the following advances between 1915 and May, 1920:

	1915	1918	May, 1920
Metals and Metal Products	97	181	193
Building Materials	94	151	341

Cf. *Monthly Labor Review*, (October, 1920), p. 61.

TABLE V. INDEX NUMBERS OF PRICES AND WAGES PAID BY RAILWAY AND PRICES PAID FOR STREET CARS.

Year	General Commodities*	Bessemer Rails, Birmingham*	Lake Copper*	Common Brick (Atlanta) †	Sand (Atlanta) †	Cement (Atlanta) †	Crushed Stone (Atlanta) †	Wages, Building Trades (Atlanta) ‡	Arithmetic Average, 13 Commodities Bought by Company for Railways	Wages, Motormen and Conductors (Atlanta)	Wages, Common Labor (Atlanta)	Prices of Cars Bought by Company	Index of Cost of Railway Property. ♭
1927	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$191.79
1926	151.0	180.9	87.7	172.8	210.5	171.8	154.2	249.4	.....	200.0	200.0	$14,500	.....
1925	158.7	168.8	89.4	.....	.....	.....	.....	.....	.....	.....	.....	14,500	.....
1924	149.7	169.9	83.2	.....	.....	.....	.....	.....	.....	.....	.....	12,875	.....
1923	153.7	203.8	92.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1922	148.8	168.6	85.4	.....	.....	.....	.....	.....	.....	.....	.....	12,800	.....
1921	146.9	189.8	80.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	192.82
1920	226.2	348.0	114.2	340.0	225.0	209.3	187.5	191.0	232.1	191.3	233§	11,937	.....
1919	206.4	243.8	121.5	326.5	180.0	178.1	178.1	153.0	.....	.....	267	.....	.....
1918	194.3	283.1	156.8	326.5	185.0	184.3	178.1	123.0	181.8	121.7§	167§	.....	.....
....	.....	.....	.....	.....	.....	.....	.....	.....	.....	165.2	233	5,819	.....
1917	177.2	299.9	186.9	183.6	165.0	146.8	156.2	123.0	.....	.....	.....	.....	.....
1916	126.8	134.2	175.1	.....	125.0	131.2	146.8	123.0	.....	.....	.....	.....	.....
1915	100.8	91.3	109.7	122.4	115.0	106.2	112.5	123.0	100.0	100.0	100.0	.....	.....
1914	98.1	87.3	.....	.....	100.0	.....	.....	.....	.....	.....	.....	4,111	100.0
1913	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	.....	.....	.....	.....	.....

* Bureau of Labor Statistics.
† Index based on prices quoted by an Atlanta supply concern.
‡ Compiled by Baehr, for six trades, based on quotations in *Monthly Labor Review*, September, 1927.
§ Two indexes indicate change of wages during the year.
♭ Compiled by Luick.

which were doubled and some more than trebled. Freight rates on the steam railways also had advanced.[44] In fact, hardly anything that was required for either maintaining, extending or operating the street railways had failed to make a marked advance in price.

The change of prices did not alter a jot the quantities of materials, supplies, or labor required for a proper handling of the railways It did, however, alter the money cost of utilizing them in rendering transportation service. Calculations based on the data in Table V show that the number of days of common labor which in 1915 cost $100 cost $167 or more in 1918 and $233 or more in early 1920, and that the quantities of the 13 commodities to be had for $100 in 1915 cost $181.80 in 1918 and $232.10 in 1920. The exchange power of the dollar had shrunk, until in terms of the 13 commodities it bought in 1918 only 55%, and on July 1, 1920, only 43.08% of what it had bought in 1915. For these reasons the money costs of operating the system rose precipitately after 1915 and caused extraordinary drains on the treasury funds.

While the struggle with these increasing burdens was on, car fares, which were the chief source of revenue and of ability to meet financial demands, remained at five cents until 1919. In other words, the revenue per unit of traffic remained stationary regardless of the mounting money cost of handling that traffic[45] and the railways were caught in a vise whose jerkily closing jaws made the situation more acute with each new change that came. For years before the war disturbance, price trends had been upward and every such change tended to narrow the difference between price, the fare, and the cost of collecting that price. The spreading of the railway net and the dispersion of parts of the traffic tended in the same direction.[46] But in spite of all this, other circumstances favored the management. These were: (1) that new savings were effected in the purchase of electricity as from time to time new hydro-electric plants replaced coal-burning plants; (2) economies were effected by improvements in types of structure, in administration and operating technique;[47] (3) population grew until traffic on parts of the system became dense enough to yield additional surpluses without corresponding expense; and (4) not least of all, general prices and wages were low enough that the revenue from the five-cent fares exceeded the total of fixed and variable expenses. That excess was first the source of profits and later, when rising prices had diminished the expense-paying power of the dollar of revenue, the shock absorber that postponed the day of financial distress. Here were two sets of contending factors. Those that favored the Company held their own until the arrival of the price revolution.

The effects of these conflicting factors can be seen in Table VI, which gives for a period of 13 years the gross income, operating expenses, and operating ratios. The fall of gross revenues for three years after 1913 and their steadiness since 1920 are to be remarked. Operating expenses were less ready than revenues to fall in 1914-1916 and have fluctuated more than revenues since 1920. The operating ratio, which had been as low as

[44] 46 G. R. C. R. 455.

[45] Any suggestion of a rise of social cost is to be avoided here. Change in social cost, if any, was probably in the opposite direction.

[46] Mileage of track increased from 204 in 1915 to 226.16 in 1920; fare-paying passengers from 52,649,629 to 77,284,154.

[47] Cf. Hearing of 1927, p. 74, emphasis on unification as a cost-saving factor.

49.14% in 1910 and 50.2% in 1912,[48] rose gradually until 1919, then advanced by 12.64% in a single year, again advanced several points more and remained upon a higher level until 1918, when it again fell to 66.6%.

[48] *Proceedings* of 1918, pp. 217, 219. These were said to compare with an average of 58.7% for the street railways of the United States in general in 1912.

In addition to the dispersion of traffic, increasing use of the motor car and the rising price level, there were other influences. For instance, in 1916 the parent company seemed about to pay off "every dollar of its floating debts and notes," it was said, and to begin to hand out unpaid dividends on preferred stocks. For the sake of the depreciation reserve

TABLE VI. FINANCIAL RESULTS OF OPERATIONS OF THE RAILWAYS.*

Year	Gross Income		Operating Expenses		Operating Ratio	Net Earnings
	Amount	Percentage Change (+ or —)	Amount	Percentage Change (+ or —)		
1927	$5,127,098	—2.47	$3,417,573	—8.10	66.60	.....
1926	5,257,315	2.38	3,720,166	—3.79	70.76	.....
1925	5,134,919	1.80	3,867,034	2.60	75.30	.....
1924	5,043,959	—3.81	3,767,555	—1.75	74.69	.....
1923	5,244,205	2.69	3,834,575	4.20	73.10	.....
1922	5,106,816	—1.04	3,680,186	3.89	72.06	.....
1921	5,160,785	5.78	3,536,691	8.24	68.53	.....
1920	4,878,356	8.90	3,267,281	22.42	66.97	.....
1919	4,478,785	23.57	2,668,887	29.04	59.54	.....
1918	3,624,393	18.56	2,068,113	25.29	57.06	.....
1917	3,056,872	10.45	1,642,665	13.10	53.73	.....
1916	2,767,478	1.57	1,452,308	—0.74	52.51	.....
1915	2,724,621	—6.05	1,463,189	.....	53.70	.....
1914	2,900,262	.....	.....	.....	.....	.....
1913	2,900,064	.....	.....	.....	.....	.....
1926	$5,256,242	.....	$4,703,826	.....	89.49	$ 552,416
1925	5,130,375	.....	4,809,081	.....	93.73	321,294
1924	5,038,311	.....	4,586,896	.....	91.04	451,414
1923	5,235,782	.....	4,598,571	.....	87.83	637,211
1922	5,097,389	.....	4,406,308	.....	86.44	691,081
1921	5,148,753	.....	4,206,004	.....	81.69	942,749
1920	4,857,614	.....	3,871,851	.....	79.71	985,763
1919	4,463,846	.....	3,272,633	.....	73.31	1,191,183
1918	3,610,184	.....	2,599,196	.....	72.00	1,010,988
1917	3,043,253	.....	2,216,997	.....	72.85	826,257
1916	2,752,354	.....	1,920,698	.....	69.78	831,656
1915	2,709,850	.....	1,928,803	.....	71.18	781,047
1914	2,900,262	.....	1,966,785	.....	67.81	933,477

*The first part of the table leaves out Taxes, and Renewal and Replacement Reserves in giving Expenses; the second part includes them.

it refrained for a year.[49] Then, when the conservation of men for war uses became a supreme desire in the country, a huge program of electrical development was planned in order to save costs of man-power and fuel. Orders for machinery went forward and payment was to be effected with capital, 7/10 of which was to be advanced by the Federal Government. Construction was soon to begin, when things went awry. A prolonged drought curtailed both water supply and hydro-electric current; war demands and a severe winter called for every ounce of fuel that could be spared for use elsewhere; and general prices, whose index had already risen 76.4 points in two years (1915–1917) rose another 17.1 points in 1918.[50] Costs mounted, and endeavors to keep them within the usual, or desired, relation to receipts were without avail. With allowance for reserve and replacement they exceeded budget estimates for the year 1917 by a round half million dollars, which was charged up to the railway.[51]

Floating debts, which totaled $1,985,000 on the eve of the great strain, were increased by $680,013 spent for construction purposes.[52] By this time the credit outlook had become unfavorable. A series of long-term bonds had been issued with a par value of $2,930,000, from the sale of which $2,257,675 was realized although $418,000 of them still remained unsold in May, 1918.[53] Two other issues met with slow sales. A Company official said: "There is no market; we can get no offer for our bonds."[54] Thus reverse followed reverse, and defeat met every effort to stem the tide. Further retrenchment became necessary. The execution of the development program was therefore suspended, the manufacturers were asked to delay for 12 months delivery of the machines ordered and construction work for ordinary purposes was cut to the bone in order to save expense.[55] After that the remaining remedy of a rate increase was sought.

III. The First Fare Case

An advance of fares was the obvious means of relief. But fares were "of intimate concern to large numbers of persons." On that account the power to fix them had been given to the Railroad Commission of the State of Georgia,[56] and the people viewed the exercise of that power with a jealous eye. Application for an advance was sure to be opposed regardless of the showing made in its defense. Therefore, although the painfulness of the situation grew from month to month, witnesses said the Company did not go to the Commission for relief, until the effects of the deficiency of earned funds began to menace the efficiency of the service. When that point had been reached, no choice remained but to make the facts known.[57] Accordingly, in May, 1918, the Commission was asked to permit the Com-

[49] *Ibid.*, pp. 153–154, 446, 448, 449. The Railroad Commission had interposed here, not with an order, but with a suggestion. Funds for such dividends had probably accrued from the electrical department rather than from the railways, because railway income in 1916 was but $42,800 above that of 1915, while that of the whole Georgia Railway and Power Company was $485,000 above that of the year before. See also Hearing of 1927, pp. 1035, 1036.

[50] *Proceedings* of 1918, pp. 12, 14, 74, 79, 82, 93.

[51] *Ibid.*, pp. 82, 164, 165, 172. In the testimony a deficit, i. e., a falling below an alleged, reasonable return, was charged to the railways alone. *Ibid.*, pp. 198, 199.

[52] *Ibid.*, pp. 190, 191. Cf. pp. 217-19, and especially p. 146 for mention of collateral notes dated August 1, 1917, and due in 2½ years.

[53] *Ibid.*, pp. 187–189. The apparent sacrifice in this was $254,325, if no account is taken of cost of issuing. This was equal to 10.1% of the amount of the issue.

[54] *Ibid.*, p. 83.

[55] *Ibid.*, pp. 14, 15, 93.

[56] Georgia Laws, 1907, No. 233. Cf. *Proceedings* of 1918, pp. 153–54.

[57] *Proceedings* of 1918, pp. 7, 9, and also 83, 84, 180.

pany to raise the fares on all lines in the City to six cents and to collect two cents additional for a transfer.[58] Increased rates on gas and electricity were also requested.

The application was followed by public hearings in which both advocates and opponents of the proposed changes made known their wishes. The former desired to have the fares raised, but also to get an acknowledgment that their demands were reasonable. With this in view they stated facts and aims, made pleas and uttered warnings. They pointed out that transportation in the streets by their system of railways had become an integral part of the economy of the community, but that the continuous operation of that system depended upon the financial condition of the railway, which meant dependence upon the adequacy of the revenues from operation to cover costs of rendering service. Furthermore, costs were to be viewed with foresight, as including not merely operating expenses but also expenditures to cover depreciation and to provide returns sufficient to induce investors to risk their funds in the business.[59]

The financial record of the Atlanta railways was reviewed. The argument pointed out that, although there had been a period of prosperity, the war disturbances had destroyed the due balance between expenses and revenues;[60] that for months the situation had been growing worse; and that it had become so acute that the transportation system of the City stood in danger of serious impairment.[61] It was therefore represented that the case was urgent.

The proposed increase, it was said, would be only a matter of justice to the Company. Economic law had already applied to other prices; properly it should apply also to street-car fares,[62] and were the petition granted, the fares would still be low enough for patrons to afford them. The people were used to paying for other things prices that seemed extraordinary, e.g., the 50% increase in the rate of postage on first-class mail.[63] Compared with this a 20% increase in car fares would be moderate and would in any event leave the street cars the most economical means of transport available to any person within their reach.

To complete the argument facts from the outside were introduced. It was alleged that the flat five-cent fare had wrought financial havoc in other cities and as a result a situation of grave national import had arisen. Officials of the Federal Government had become concerned about it. The Federal Comptroller of the Currency was quoted as saying that low financial returns had caused the public utilities over the nation to lose the confidence of investors, that many of the companies "were threatened with ruin" and that, in order to enable them to "meet the strain put on them by the government's needs," it was necessary to allow them to increase their rates.[64] Other officials had also written to urge upon the public authorities of Georgia the same thing. Finally, the public itself, though reluctant to be convinced, had begun to realize that scant justice had been done to the utilities and that with its permission, at least its tolerance, more than 500 advances of rates had already been granted. Some of these had been in Georgia.[65]

[58] *Ibid.*, pp. 122, 127.

[59] *Proceedings* of 1918, pp. 38, 89, 90, 237, 242, 244.

[60] *Ibid.*, p. 96, and also pp. 10, 155, 156.

[61] *Ibid.*, p. 12, 13, 90, 91.

[62] *Ibid.*, p. 241.

[63] *Ibid.*, pp. 237, 238, 241.

[64] *Ibid.*, pp. 43, 45.

[65] *Ibid.*, pp. 36, 43, 45, and also pp. 94, 95, 180.

Opposing the petition were representatives of the patrons who regarded the issues raised as "essentially public in their nature" and their own interest in the reasonableness of fares as paramount to every other. Their spokesmen held that such reasonableness depended upon the value of the properties used in rendering the service.[66] They had a "conviction" that the Company had been receiving "a magnificent return from . . . its street railway system," although bulletins posted in the cars had asserted the contrary.[67] Faced with such differences of opinion, they deemed it necessary to have the facts. They therefore demanded that the Company lay its cards on the table and expose in full its financial status in order that the remuneration received by it from the five-cent fare might become known and assurance given that "unreasonable exactions" were not aimed at in the petition.[68] They asked for time to study the evidence offered and also specifically requested an audit of the accounts and a valuation of the properties. They also desired the facts about the capitalization, the regularity and propriety of the account-keeping, and insisted that valuation of properties should take due account of depreciation, upkeep, replacements, additions, and betterments.[69]

Early in the proceedings it was also announced that "the legal right of the . . . Commission to permit advances" in the contract fares would be tested in the courts.[70] Subsequently, the Municipal Council of Atlanta gave out as its unanimous "opinion that no advances in these rates were needed; on the contrary, they should be reduced."[71] From another kindred source it was complained that the "most unusual form of procedure" had been adopted by the Commission,[72] to whose judgment in the premises all parties were to defer. The Commission itself, however, rejoined that "not all of the public are informed as to the established principles which must control in rate making for public utilities," and that the protestants had submitted practically no evidence for its guidance. Its chairman chided both sides for attempting to sway the "tribunal of five men . . . under oath to try just such cases as this with the whole weight of public opinion." And further, "It is hard for human beings to ascertain sometimes what is right . . . and a body like this ought to have help."[73] He labored to get the disputants to agree as to the relevancy of certain information to the problem in hand; ruled that the burden of proof as to the reasonableness of rates asked for rested upon the Company; and advised that the rental paid for the leased properties would have to be scrutinized carefully in order to ascertain whether it was excessive.[74]

Decision in First Fare Case. The Commission declined to wait for a new valuation before taking action. Its opinion on the case stated that as a result of previous, "exhaustive inquiries into every phase of the business" it was already acquainted with the value of the properties.[75] And from the facts at hand it calculated that, after deducting all charges, the Company's accounts for the year 1917 showed a deficit.[76] It said that the "prevailing abnormal conditions"

[66] *Ibid.*, pp. 284, 296, 355.
[67] *Ibid.*, pp. 24, 25.
[68] *Ibid.*, p. 23, also pp. 22, 26.
[69] *Ibid.*, pp. 273, 274, 278–80, 296.
[70] *Ibid.*, p. 29.
[71] *Ibid.*, pp. 304, 305. Cf. Atlanta Constitution, May 19, 1918 (7).
[72] *Proceedings* of 1918, pp. 343, 344. The source of this complaint was a newspaper article, purporting to quote an attorney for the protestants.
[73] *Proceedings* of 1918, p. 182.
[74] *Ibid.*, pp. 336–37, also pp. 29–30, and 205.
[75] 46 G. R. C. R. 438.
[76] *Ibid.*, p. 442. This was in reference to all departments, the railway being one of the less favored.

which had caused that deficit had brought on an emergency and had made emergency relief necessary.[77] It expressed concern, however, that the Company management should be content with such returns as were "necessary to meet operating expenses . . ., provide for fixed charges, . . . keep their properties in efficient operating condition . . . and maintain their credit to the end that essential capital for additional facilities to meet the public . . . needs" could be had on reasonable terms; also that the occasion should not be "used as a means of securing an unreasonable or an unjust return, nor with the purpose . . . of the permanent establishment of higher rates."[78]

Returns to be endorsed for these purposes were to be based upon "a minimum value, rather than a fair value" of the property in use. But adequate returns on that low valuation were not possible at existing rates. Therefore, the Commission gave permission to advance the rates for gas and electricity, and said that the Company was "entitled to an increase in its street car fares, and that a six-cent fare would be reasonable and just, so long as existing abnormal war conditions" prevailed.[79] But it merely recommended to the municipal councils of Atlanta, College Park and Decatur to amend their contracts with the railways to allow their fares to be raised to six cents.[80] Here it stopped, assigning as its reason a lack of authority to proceed farther.[81]

The reason for taking this stand was that the Statute of 1907 to which the Commission owed its powers over car fares provided that: "Nothing herein shall be construed to impair any valid, subsisting contract now in existence between any municipality and any such company; and . . . this act shall not act as a repeal of any existing municipal ordinance."[82] Contracts obviously belonging to this class had been formed with Decatur and College Park before the statute was enacted, and in the Consolidating Ordinance (1902), by which the Company had obtained its first Atlanta franchises, apparent approval, without however any specific fare-limitation clause, was given to the already existing five-cent fare.[83] The Commission felt that it lacked jurisdiction to determine the binding force of these arrangements or, so long as they existed, to disregard them. It said, "We are estopped until such obstacle is removed in a legal procedure before a Court of competent jurisdiction, or the General Assembly further acts."[84] Accordingly it declined to issue any order affecting car fares.

The Fare Problem in the Courts. Baffled here the Company turned to the courts and since that time litigation has followed litigation. The first suit involved the question of jurisdiction. A mandamus was sought to require the Commission to take up and exercise the power over fares conferred upon it by the act of 1907. The petition was opposed; the court declined to issue the writ; and the case went on appeal to the Supreme Court, in which a hearing was had during the first quarter of 1919.[85]

[77] *Ibid.*, pp. 432, 435.

[78] *Ibid.*, p. 435.

[79] *Ibid.*, p. 447. Cf. also pp. 432–37. In 60 other cities of 100,000 population, it was reported, increased fares had already been granted to the street railways (p. 447.)

[80] 46 G. R. C. R. 447. The charge for transfer was not recommended.

[81] *Ibid.*, p. 423. Cf. pp. 416–22, Report of Special Attorney.

[82] Georgia Laws, 1907, No. 223, sec. 5. Cf. 46 G. R. C. R. 416, 445, and *Georgia Railway and Power Company v. Railroad Commission of Georgia, supra* n. 5, at 4, 9.

[83] *Supra*, pp. 4, 5.

[84] 46 G. R. C. R. 446, 447.

[85] *Minutes* of Railroad Commission, vol. 6, pp. 431, 432, 437, also pp. 465, 469, 477, 478 for revisions of rates on other lines.

In the facts laid before it the Supreme Court found three points of dispute: (1) whether a municipal council could legally enter into a contract to bind a street railway to limit its fares to a stated maximum; (2) whether an agreement existing at the time the act of 1907 was passed specifying maximum fares would bar the Railroad Commission from raising those fares; (3) whether in the absence of a valid contract of that kind it was incumbent on the Commission to fix the fares.[86]

Controversy has centered chiefly about the first point.[87] The appellant contended that a contract to limit the maximum fares to be charged by a street railway would abridge the police power of the State in a manner contrary to law, that the limiting provisions of the agreements between the Company and the towns of Decatur and College Park, and any ordinance of the City of Atlanta, designed to have the same effect, were attempts to use this power and that all were therefore illegal, void and unenforceable. But if the contracts were in some instances valid, such validity would not affect the Commission's power over rates not covered by contract.[88]

In this position the Court could not fully acquiesce. It did agree that the police power was not to be abridged, but stated that in construing that power the rights of municipalities had also to be respected. Under the constitution a municipality had the power to permit or wholly inhibit the establishment of a railway in its streets; it also had the power in granting a franchise to "impose . . . such reasonable terms as the corporate authorities" deemed best. The Court said: "The rate of fare is among the most material and important of the terms which might be imposed by the city in exchange for its consent to the laying of railroad tracks and the running of cars thereon through its streets . . . . When determined by mutual agreement, the rate would naturally be regarded as fixed until another rate was adopted by a like agreement."[89] Such an agreement would be valid and binding and need not be avoided in order to protect the police power from abridgment.[90] The first question was answered in the affirmative; a municipality could legally enter into a contract to bind a street railway to limit its fares to a stated maximum, the contracts of the Company with Decatur and College Park "were valid and subsisting . . . on the 23rd day of August, 1907, and the Commission properly held that they were without jurisdiction to fix the fares between the two towns . . . and the City of Atlanta over the lines of the railway company."[91]

The second question was subordinate to the first. On this the holding was that, although the Railroad Commission had the power to fix street car fares, the Act that gave it that power contained also the proviso exempting from its jurisdiction fares already fixed by "valid, subsisting contract." Contract provisions of the kind contemplated here had,

[86] *Georgia Railway and Power Company v. Railroad Commission of Georgia, supra* n. 5, at 3. Cf. *Minutes* of Railroad Commission, vol. 6, pp. 439, 447.

[87] *Georgia Railway and Power Company v. Railroad Commission of Georgia, supra* n. 5, at 5, also 3, 4, 13.

[88] *Ibid.*, pp. 3, 5. Counsel contended also that "fixing and approving just and reasonable rates" would not result in impairment of "such contracts under the constitution" of Georgia. Cf. 46 G. R. C. R. 451, 452.

[89] *Supra* n. 5 at 7. Here is cited an opinion of the United States Supreme Court in a Michigan case from which this language is taken. *Detroit v. Detroit Citizens Street Railway Company*, 184 U. S. 368 at 384 (1901). Cf. also *City of Kalamazoo v. Kalamazoo Circuit Judge*, 200 Mich. 146 (1918).

[90] It was also said that the Court could not agree that it was incompetent for a municipality to enter into a contract solely for the reason that the "State had not seen fit to exercise the police power in reference thereto." (*Georgia Railway and Power Company v. Railroad Commission of Georgia, supra* n. 5, at 5).

[91] *Ibid.*, at 11, 13.

when the Act was passed, applied to the traffic carried into and out of the town limits of Decatur and College Park. Therefore the rates on that traffic could not be raised by the Commission. The second question was also answered in the affirmative.[92]

The third question concerned the fares not fixed by contract. Here the Court found that the Commission had a duty to act. The lower court was reversed on that point. Thus an affirmative answer was also given to the third question and judicial recognition of the distinction between contract and non-contract fares became manifest. Hereafter, except where contract fares are specified, non-contract fares are referred to.

The First Advance of Fares. The date of this decision was March 15, 1919. In compliance with the decree from above, the lower court issued the mandamus and on receipt of it the Commission turned again to the fare problem. The City of Atlanta, alleging that "conditions had very materially changed since . . . August 14, 1918," made a show of opposition and renewed the demands for an audit and valuation of the properties. The Company replied that except for copper wire neither materials nor supplies had appreciably fallen in price, that on account of intervening wage adjustments the railway's payrolls in 1919 were to be at least $434,500 higher than in 1918,[93] and that in the country at large utility rates and tax rates had been so generally revised upward that raising the Atlanta fares to six cents would give no preferential treatment to the local Company. For these reasons the non-contract rates were raised to six cents on all lines in the metropolitan area. The contract fares, viz., those on traffic carried over the main Decatur line and over the College Park line to or from or wholly inside of Decatur and College Park respectively, were undisturbed. Other traffic on these lines, even though hauled a shorter distance, was subjected to the revised rates. The two-cent charge for the transfer ticket was not endorsed,[94] and the demand for valuation of properties was stalled through an arrangement by which, if undertaken, the City of Atlanta was to pay 40% of the expense.[95]

Thus after ten and a half months of effort the six-cent fare was established. Upon it was to fall the burden of supplying the bulk of the funds to keep the transportation system going. But wages, prices and money costs continued their rise and their shocks. Ample receipts, could they have been found, would have absorbed every shock. But, as shown in Table VII, compiled from data in Table VI, gross revenues increased in 1920 only 38.74%, while operating expenses increased by more than 98%, of the increase shown in the preceding year. As a consequence, in the first half of 1920 invested capital, reckoned at the minimum value of physical property, earned a return at the rate

TABLE VII. COMPARISON OF INCREASES OF GROSS REVENUES AND OPERATING EXPENSES.

Increase	1919 over 1918		1920 over 1919		Percentage Fall of Increase
	Amount	Percentage	Amount	Percentage	
Gross Revenues....	$854,692	23.58	$399,571	8.90	62.2
Operating Expenses	600,774	29.05	598,394	22.42	22.7

[92] *Ibid.*, at 4, 5.

[93] 46 G. R. C. R. 452, 453, 455.

[94] *Ibid.*, pp., 454-456. Cf. Opinion and Order of Railroad Commission, 1920, p. 13.

[95] The other 60% was to be paid by the Company. The Company signed an agreement to pay its share as a condition of getting the advance of car fares. (46 G. R. C. R. 456, 457). Cf. Hearing of 1920, pp. 5, 9, 11, 13, 15. A Company witness twitted the City on its eagerness for the valuation which it combined with reluctance to assent to the allotment of expense.

of 5.67% per annum.[96] Certain of the effects were financial. For instance, loans contracted in 1917 fell due in February, 1920. Funds to pay them were lacking and renewals cost the Company over 9% interest.[97] Funds borrowed in December, 1919, to prepare for January, 1920, payments could not, as anticipated, be paid back in the spring. Instead renewals and more borrowing ensued.[98] These things followed closely upon a refusal of Drexel and Company to accept the Company's bonds at any price, unless prospects brightened.[99] It was also a time when the railway department had already begun to use the other departments of the Company as crutches. The six-cent fare had not wrought the salvation desired of it.

The second installment of this article, covering the second and third fare cases, will appear in the August issue of the *Journal*.

[96] This was on the Commission's valuation. Opinion and Order, 1920, pp. 6, 13. The valuation was purposely made low to the dismay of the Company's managers. Cf. Hearing of 1920, p. 251, and also pp. 71, 274, 453.

[97] *Ibid.*, p. 233. Cf. *Proceedings* of 1918, p. 146, mention of $2,500,000 two-and-one-half-year notes, dated August 1, 1917, and also to be used for construction.

[98] Hearing of 1920, p. 177.

[99] *Ibid.*, p. 111. Cf. also p. 42.

JOINT OPERATION OF MUNICIPAL UTILITIES IN WISCONSIN

By E. ORTH MALOTT

ALTHOUGH a number of studies have been made of municipally owned electric utilities, little attention has been given to the joint operation of municipal electric and water utilities. Yet *joint* operation by municipalities of these two utilities raises the question whether both utilities are self-supporting or whether one utility is being subsidized by the other. Joint operation requires stricter accounting practice to prevent one utility from becoming a parasite upon the other. Since the public seldom goes back of a statement of total revenues and total disbursements with the resulting net gain or loss, an unsound financial relationship between jointly operated utilities may continue for a considerable period of time. The joint operation of municipal utilities has many advantages of economy but also presents the disadvantage of failing to secure proper distribution of cost. Since the public seems to be prejudiced against paying very much for water[1] and yet will pay an amount for electricity in excess of its cost of generation and distribution there is danger that the electric utility will be made to contribute to the support of the joint water utility. Where both the electric and the water utility are owned by the municipality but are operated *separately*, the problem of subsidy is not so acute but nevertheless is undoubtedly present.

In the course of a study of municipal electric plants in Wisconsin, the question of *joint* operation of utilities was encountered. Since the desirability of knowing something of the results flowing from the affiliation was apparent, an investigation was made.[2] The situation pointed out and the conclusions given are, of course, applicable to only one state and should not be indiscriminately used, for the municipal ownership movement has been found to differ somewhat from state to state. Also the materials examined, chiefly the records in the files of the Wisconsin Railroad Commission, do not afford complete answers; especially regarding the problem of subsidy, the data analyzed give only indications and not absolute proofs. Indeed, on this question it is doubtful whether even a detailed audit of municipal plant accounts would yield an absolutely definite answer, because some elements of the problem of joint operation are not readily susceptible of statistical measurements, even with commercially adequate and consistent accounting. Yet with all such imperfections, the results of this phase

[1] To the public in the humid states water seems to appear as a "free" good. With lakes and rivers and much rain, water should be plentiful and the reason for anything more than a nominal charge for water is not clear. This attitude of the public probably arises from a misunderstanding of the operation of a water utility and also from the machinations of political leaders who have tended to perpetuate the conception of the city water supply as a free good. The active opposition in large cities toward the universal installation of water meters is illustrative of the public attitude.

[2] Only jointly operated plants were included. Those municipal water plants which were separately operated were not included. "Joint operation" is used to designate water and electric plants which are affiliated under one management to the extent that some of the accounting relationships between the two utilities are on a nominal rather than a strictly business basis. No implication is intended that the nominal basis is necessarily inequitable in all cases. It is, of course, possible that a municipal water plant might be operated in the same community with a municipal electric plant and buy power from the electric plant and still be separately operated.

of the Wisconsin study appear sufficiently striking to warrant presenting them for what they are worth as indications, leaving most of the deductions to the reader.

A large proportion of municipal electric plants in Wisconsin are operated jointly with a water utility. Sometimes other utilities are also operated, the most common is steam heating and the unusual one in the Wisconsin group is a toll bridge. The extent of joint utility operation of electric and water plants by Wisconsin municipalities is indicated in Table I. The classification is by type of station[3] and also by population groups. In 1926, 86.2% of all municipal electric plants in Wisconsin were operated in conjunction with the water utility.

TABLE I. PERCENTAGE OF REPORTING ELECTRIC PLANTS OPERATED JOINTLY WITH WATER UTILITY, BY TYPE OF STATION AND BY POPULATION GROUP FOR SELECTED YEARS

	1911	1916	1919	1922	1926
TOTAL: All types, All years.	71.9	67.0	73.8	81.3	86.2
Steam	72.5	65.9	84.2	95.0	100.0
Hydro	75.0	92.3	70.6	76.9	76.9
Gas and Oil	†	33.3	33.3	50.0	100.0
Purchasing	66.7	68.2	77.8	80.7	85.5
Under 500	100.0	42.9	20.0	22.2	16.7
500-1000	54.5	70.6	61.5	80.0	80.8
1001-1500	100.0	61.5	89.5	81.3	93.3
1501-2000	50.0	69.2	92.9	92.3	100.0
2001-3000	87.5	100.0	100.0	100.0	100.0
Over 3000	100.0	81.8	92.3	95.0	94.7

*The figures for the year 1911 may not be exact because of incomplete reports and the table is based on reporting plants only. This explanation also applies to the irregular figure of 70.6% for the 500 to 1000 population group in 1916 when several plants failed to report.
†Not reported.

All steam plants had water utilities in 1926. This situation is largely the result of the gradual elimination of small steam plants which were located in communities too small to afford a central water supply system. In general, most of the small communities which have given up municipal electric plants have not had a publicly owned water plant. By a "small community" is meant a place with a population of less than about 700 people. In such places the source of water supply is usually an individual well or cistern.

Some of the communities served by hydro plants are also too small for the establishment of a water utility and only 76.9% of the hydro plants are accompanied by a water utility, although other reasons are important, as will be indicated subsequently. The single oil plant in 1926 had a jointly operated water utility. Over 85% of the purchasing plants had joint water utilities.

A complete explanation of the presence or absence of a joint water utility with the several types of stations is not apparent. Steam and oil prime movers are perhaps more readily adapted to the direct pumping of water than hydro power, which is not quite so flexible. Then, too, hydro plants are located at the source of water power which may be at some distance from the municipality. Such water may not be suitable for human consumption. With steam and oil, the driven water wells and the prime mover may, within reasonable limits, be located together. On the other hand, the electricity generated by any type of prime mover or the electricity purchased by the municipality may easily be applied to the pumping of water. Water pumping is an excellent, steady or off-peak power load. Perhaps the purchasing plants, which buy power on a demand basis, are more likely to be impressed with the lower money cost of power for water pumping as an off-

[3] By "type of station" is meant a classification based on whether the plant purchases over half of its output or whether it generates more than half of its output; and if generating, whether the type of prime mover used to drive the electric generating equipment is steam, hydro, or gas and oil.

peak load than those plants which generate their own power and are not brought face to face with demand costs and the use of off-peak power. Probably the high percentage of purchasing plants which have joint water utilities is the result of the gradual elimination of those purchasing plants which are in communities too small to establish a water utility and of the transfer to the purchasing class of some of the larger municipal plants which previously were generating.

Only 16.7% of the municipal electric plants in places of less than 500 people have joint water utilities. This is further evidence in support of the statement previously made that very small communities may have no water utility. In general, the larger the population group the greater will be the percentage of joint water and electric utilities among the municipal plants. The greater percentage of joint services in larger towns is accounted for by the predominance of municipal ownership in the water industry and also by the fact that smaller towns are less likely to have a central water supply.

At this point it may be well to repeat that not all municipal water utilities are *jointly* operated with municipal electric utilites, and that in the present article the writer is concerned only with *joint* municipal electric and water plants. This "jointness" must be remembered throughout the discussion of results and conclusions. As a qualification of the general statement just made, joint operation of the electric and the water utility is a desirable managerial economy in small communities but in very large communities a separation of the two municipally owned utilities may be accomplished without a loss of economy of management. Several instances of this kind occur in Wisconsin, as displayed by the irregularity of the percentage in the group of towns greater than 3,000,[4] and are particularly noticeable in connection with very large municipal plants throughout the United States.

Analysis of Joint Utility Plant Value by Type of Station

Several difficulties are encountered in the analysis of plant characteristics over a period of years. Any group classification of municipal plants will have a changing content from year to year. The same municipal plants may not stay together in the one group because of an increase of population or because of a change in operating character. Moreover, new plants may appear as old plants change classification or disappear but there is no certainty that the number of plants in any one group will remain the same. In fact, most groups show a change in number from period to period.[5]

Those plants which were in the group for the entire period covered might be separated and used as a basis for study, but such a method of procedure would give too small a sample. As a compromise and in order to minimize the effects of these difficulties, all plants were

[4] Another qualification of the general statement is the presence of privately owned water utilities in some of the medium sized population groups which in the Wisconsin study represent the largest population group shown.

[5] The writer was originally interested *primarily* in municipal electric utilities and *incidentally* in jointly operated water utilities. Therefore, if the municipal electric utility was sold, the record of the municipal water plant was dropped. The writer does know that the company purchasing the electric utility did not always want the water utility. Results do not seem to indicate that joint electric municipal plants are operated differently from the individual municipal electric plant. Although the writer is not prepared to make a direct statement to that effect, he sees no reason why the results of the operation of an individual municipal water plant should be very different from the operation of the joint municipal water plants.

TABLE II. PERCENTAGE DISTRIBUTION OF PLANT AND PROPERTY VALUE BY TYPE OF STATION FOR SELECTED YEARS

Type of Station and Years	Number of Municipal Plants	Percentage Distribution: Plant and Property Value				
		Electric	Water	Other Utility	Common Property	Total
TOTAL: All Types, All Years.	100.0	100.0	100.0	100.0	100.0	100.0
Steam						
1911	71.4	78.6	76.7	....	....	77.6
1916	50.5	61.6	68.9	100.0	....	65.2
1919	38.2	50.6	56.9	100.0	....	53.7
1922	22.7	29.7	33.9	6.9	100.0	31.1
1926	11.1	24.8	26.4	31.5	31.4	24.6
Hydro						
1911	11.7	17.1	17.5	....	....	17.3
1916	14.6	22.8	18.3	....	....	20.6
1919	15.2	23.8	12.5	....	....	18.5
1922	13.4	22.9	10.3	....	....	16.8
1926	14.4	23.8	9.2	....	....	16.4
Gas and Oil						
1911	7.8	*	*	....	....	*
1916	12.6	4.0	1.8	....	....	2.9
1919	11.4	6.7	5.2	....	....	6.0
1922	6.2	4.9	3.5	....	....	4.2
1926	1.1	4.1	4.0	....	....	4.0
Purchasing						
1911	9.1	4.3	5.8	....	....	5.1
1916	22.3	11.6	11.0	....	....	11.3
1919	35.2	18.9	25.4	....	....	21.8
1922	57.7	42.5	52.3	93.1	....	47.9
1926	73.4	47.3	60.4	68.5	68.6	55.0

*Not reported.

included in the several group classifications and comparisons were made on the basis of the percentage relationship of the group to the total for all groups. In other words, the percentage distribution method was adapted to the present situation.

Table II above shows the distribution of electric plant value,[6] also the distribution of the total water utility property value by types of electric plants. As with the electric plant value, the steam plants have a greater relative proportion of water plant value. In 1926, 26.4% of the total water utility value was apportioned to the steam group which comprised 11.1% of the total number of municipal plants and which had 24.8% of the total electric plant value. This situation may be accounted for by the fact that steam plants are usually large plants so far as relative size of Wisconsin municipal plants is concerned.[7] Those steam plants which

[6] Value, as here used, represents book value as reported to the Commission. No accounting adjustments or alterations were made by the writer. Under the uniform accounting system, depreciation and depreciation reserve were required but sometimes not insisted upon in every case, particularly in the earlier years.

[7] To illustrate the use of this method of analysis an example is given. If the municipal plants were all equal in every respect, the proportion of total plant value which any group possessed would be the same as the proportion of the total number of plants which are in the particular group. If there are 100 such plants and 10 are in one group, then 1/10 of the total plant value would also be in that group. On the other hand, if 10 out of 100 municipal plants held ¼ of the total plant value, then one may rightly draw the conclusion that, in general, these 10 plants are *relatively* large. Their

(Footnote 7 continued on page 200)

had been located in communities without water service have gradually withdrawn from the steam classification.

Hydro plants in 1926 made up 14.4% of the total number of municipal plants and had 23.8% of the electric plant value but only 9.2% of the water utility value. Several factors may be offered in explanation. First, only 76.9% of the hydro plants have joint water utilities, as shown in Table I. Next, the fixed investment in a hydro plant is greater than for steam or oil generating plants. Table III indicates that in 1926 the electric plant investment was 74.0% of the hydro group total of plant investment and the water plant value was only 26% of this total. The *average* plant value for the hydro plants is smaller than that for the steam plants, as these hydro plants are small plants.[8]

Referring to Table II, the water system operated with the oil plant had 4.0% of the value of all the water plants. The oil plant itself represented 1.1% of the total number of municipal plants in 1926 and had 4.1% of the value of all electric plants. This indicates that the electric plant is comparatively large and that the water plant is in proportion, as far as size is concerned. Since there was only one oil plant in 1926 (and it was, in fact, comparatively large), no generalizations are advisable regarding the joint operation of this type of municipal electric plant with a municipal water plant.

The purchasing plants have relatively a larger percentage distribution of the

TABLE III. PERCENTAGE DISTRIBUTION OF TOTAL PLANT AND PROPERTY VALUE BY KIND OF UTILITY FOR TYPE OF ELECTRIC STATION FOR SELECTED YEARS

Type of Station and Year	Percentage Distribution of Total Plant and Property Value by Kind of Utility				
	Electric	Water	Other Utility	Common Property	Total
All Types					
1911	50.3	49.7	*	...	100.0
1916	50.8	49.1	.1	...	100.0
1919	53.5	46.1	.4	...	100.0
1922	53.4	44.4	2.1	.1	100.0
1926	50.9	46.7	2.2	.2	100.0
Steam					
1911	50.9	49.1	*	...	100.0
1916	47.9	51.9	.2	...	100.0
1919	50.4	48.8	.8	...	100.0
1922	51.0	48.5	.4	.1	100.0
1926	51.3	46.6	2.0	.1	100.0
Hydro					
1911	49.8	50.2	...	...	100.0
1916	56.3	43.7	...	...	100.0
1919	68.9	31.1	...	...	100.0
1922	72.8	27.2	...	...	100.0
1926	74.0	26.0	...	...	100.0
Gas and Oil					
1911	*	*	...	...	100.0
1916	69.9	30.1	...	...	100.0
1919	59.8	40.2	...	...	100.0
1922	62.5	37.5	...	...	100.0
1926	52.8	47.2	...	...	100.0
Purchasing					
1911	42 5	57.5	...	...	100.0
1916	52.1	47.9	...	...	100.0
1919	46.4	53.6	...	...	100.0
1922	47.4	48.5	4.1	...	100.0
1926	43.7	53.0	3.1	.2	100.0

* Not reported.

(Footnote 7 continued from page 199)

size is, of course, relative to the other 90 plants *only* and not to all municipal plants everywhere or to private plants. If now these 10 plants which possess ¼ of the total electric plant value also possess ⅓ of the total water plant value, the conclusion may be reached that, in general, the water plants in these communities are relatively large as compared with other water plants in the group. A conclusion that the water plant value of this group exceeds the electric plant value is not warranted from the proportions given so far. The absolute dollar amount invested in the total electric plant value may be $2,000,000, while the absolute dollar amount invested in the total water plant value may be only $1,000,000. In such case, ¼ of total electric plant value will equal $500,000, while ⅓ of total water plant value will be only $333,333.

To determine the value of the electric plant relative to the value of the water plant in a group, the same method of analysis is used. If the *combined* electric plant value and water plant value for the group is taken as 100% and, if the electric plant value represents 53% of this total group value and the water plant value is therefore only 47% of the total group value, one may conclude that the relative financial size of the electric plant is somewhat greater than that of the water plant. (This procedure is followed in Table III.) Physical size is not necessarily involved in the comparison of the electrical plant with the water plant because the two utilities are dissimilar. If all the plants were electric utilities, a comparison of relative physical size would be possible in a general way.

[8] See author's monograph, "Forces Affecting Municipally Owned Electric Plants in Wisconsin," *Studies in Public Utility Economics*, Research Monograph No. 2 (Chicago: Institute for Research in Land Economics and Public Utilities, 1930), p. 82, Table 6.

water utility plant value (60.4%) than of electric utility value (47.3%) but both plant distributions are below the percentage distribution of the number of purchasing plants (73.4%) in the year 1926. Table III shows that the water utility has 53.0% and the electric utility 43.7% of the plant and property value for the purchasing group (1926). Yet only 85.5% of the purchasing plants have joint water utilities. The explanation is, of course, that purchasing electric plant investment is obviously less than the investment in an equivalent generating plant.

Analysis of Joint Utility Plant Value by Kind of Utility

Table III presents the relative distribution of the total plant and property value of each group of stations among the several types of utilities in that group. A caution is necessary in drawing conclusions from the table. Joint utilities reported to the Railroad Commission a separation of the operating revenues derived from each utility but the balance sheet was a joint balance sheet. As brought out in Table I, most electric plants were joined with water utilites but some were not. Accordingly the electric utility property value will represent a somewhat larger number of plants than the water utility property value. This will tend to increase the proportion of the property value of the electric utility and will give the water utility a slight advantage in the subsequent analysis without invalidating the conclusions.

In 1926, 46.7% of the total municipal plant and property value was represented by the water utility and 50.9% by the electric utility (Table III).[9] A statement that a water utility requires less investment than the electric utility is not justified from these figures, because only 86.2% of all municipal electric plants had jointly operated water utilities. Actually the relative investment in joint water and electric utilities varies widely and an average would come close to equal amounts for each. The 50-50 method often used in the rough accounting apportionment of joint investment and costs may be responsible for the approximately equal average and certainly it has exerted an influence on the average.

All steam plants in 1926 had jointly operated water utilities and in this group the water utility had 46.6% of total combined plant value with 51.3% represented by the electric utility (Table III).[10] The distribution of property value between the joint utilities of hydro plants was 74% for the electric utility and 26% for the water utility.[11] Therefore the 74-26 proportion of the electric and water utilities of hydro plants would probably be equivalent to the equal proportion shown by steam plants. The oil plant in 1926 shows

[9] The percentage distribution equals 100. In this instance, the water utility possessed 46.7%, and the electric utility 50.9% of the combined plant and property value. Other utility property, such as a gas plant, a steam heating plant, and a toll bridge, which are jointly operated with the electric and water utilities, represented 2.2% of the combined value. Two tenths of 1% represented common property whose value could not be allocated to either utility alone.

[10] Two per cent. of the combined plant value represented some other joint utility which in the case of steam stations was usually a steam heating utility. One tenth of 1% of the combined plant value was unapportioned or common property. Since the steam heating utility made use of waste steam, it was apparently not burdened with any investment costs of the power house. In the case of steam plants which have changed to purchasing, the steam heating utility if present before the change, seems to have been retained. This explains the appearance of other utility property value among the purchasing plants in Tables II and III.

[11] In this connection it should be reiterated that only 76.9% of the hydro plants have joint water utilities and hydro construction is ordinarily more expensive than steam so that, for the same capacity plant, hydro investment would be greater than steam investment.

52.8% electric, and 47.2% water plant value which may or may not be representative.

Purchasing plants require less investment than generating plants so that the investment in the joint water utility would be expected to be more than the investment in the electric utility. Since only 85.5% of the purchasing plants had joint water utilities the relative electric utility investment would be somewhat increased in the total plant value for the group. Under these conditions in 1926, the water utility had 53.0% and the electric utility 43.7% of the total plant value of the purchasing group. Property of other utilities joint with the combination water and electric utilities represented 3.1% of total plant value and unallocated common property represented 0.2%.

Analysis of Joint Utility Plant Value by Population Groups

Table IV presents the percentage distribution of the water utility property

TABLE IV. PERCENTAGE DISTRIBUTION OF PLANT AND PROPERTY VALUE BY POPULATION GROUPS FOR SELECTED YEARS

Population Group and Year	Number of Municipal Plants	Percentage Distribution				
		Plant and Property Value				
		Electric	Water	Other Utility	Common Property	Total
TOTAL: All Groups, All Years.	100.0	100.0	100.0	100.0	100.0	100.0
Under 500						
1911	5.2	.4	.5	....	....	.5
1916	8.7	.9	.9	....	....	.9
1919	11.4	1.6	.5	....	....	1.1
1922	11.3	4.0	.4	....	....	2.3
1926	7.8	4.0	.3	....	....	2.2
500-1000						
1911	37.6	16.8	5.8	....	....	11.3
1916	39.8	16.0	11.9	1.1	....	14.1
1919	37.2	14.0	8.9	....	....	11.6
1922	28.9	10.5	7.9	....	....	9.1
1926	28.8	8.3	7.4	....	2.4	7.6
1001-1500						
1911	16.9	9.6	15.2	....	....	12.4
1916	17.5	17.4	13.9	....	....	15.7
1919	18.1	14.5	12.4	1.0	....	13.5
1922	16.5	10.5	10.1	6.4	....	10.3
1926	16.7	8.2	10.4	9.0	....	9.2
1501-2000						
1911	15.6	21.9	11.1	....	....	16.5
1916	12.6	17.1	11.6	....	....	14.4
1919	12.4	18.0	14.6	....	....	16.3
1922	15.5	13.9	10.0	....	....	11.9
1926	16.7	14.6	11.6	....	59.1	12.9
2001-3000						
1911	10.4	20.1	22.9	....	....	21.4
1916	7.8	14.3	17.3	....	....	15.7
1919	7.6	14.2	12.9	3.0	....	13.6
1922	8.2	9.2	12.2	....	....	10.3
1926	8.9	9.2	10.1	....	7.0	9.5
Over 3000						
1911	14.3	31.2	44.6	....	....	37.9
1916	13.6	34.3	44.4	....	....	39.2
1919	13.3	37.7	50.7	96.0	....	43.9
1922	19.6	51.9	59.4	93.6	100.0	56.1
1926	21.1	55.7	60.2	91.0	31.5	58.6

by population groups. As previously suggested, the municipal plants in communities of less than 500 people do not seem to have developed a water utility jointly operated or otherwise. In 1926 only 0.3% of the water utility plant value was credited to this group and, although it contained 7.8% of the total number of electric plants, only 1/6 of these plants had a joint water utility (Tables I and IV).

For the other population groups, the proportion of water utility value becomes larger relative to the proportion of the total number of plants as the size of the population group increases. In 1926, 60.2% of the total water utility plant value was in the population group of more than 3,000 people, although the group contained only 21.1% of the total number of plants and had only 55.7% of the total electric plant value. The presence of purchasing plants in any population group tends to decrease the proportion of electric utility plant value relative to water utility plant value. To some extent this factor has affected all the population distributions of plant value but, for that matter, so has the presence of hydro plants in a group.

This discussion of joint operation of municipally owned utilities will be concluded in the next issue of the *Journal* with an analysis of the operating revenues of such utilities in Wisconsin.

The second installment of the article by John F. Reinboth on "Measurement of Risk in Public Utility Industries" has been postponed until the August issue of the *Journal*.

DEPARTMENTS

The departments of the JOURNAL are edited specifically with regard to their interest to the readers who are especially concerned with the economic problems of land and public utilities. For the most part the material for the departments will be prepared by members of the staff of the Institute for Research in Land Economics and Public Utilities.

SUMMARIES OF RESEARCH

In this department are given brief accounts of investigations in progress and statements of tentative conclusions reached in the course of work by the staff of the Institute and others associated with the Institute's work.

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COMMENTS ON LEGISLATION AND COURT DECISIONS

Here the readers of the JOURNAL will find a miscellany of summaries and interpretations of recent legislation, court decisions, and documents that have economic significance in land and public utility problems.

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SUMMARIES OF RESEARCH

AIRPORTS VERSUS SUBDIVISIONS

THE competition between airports and residential subdivisions in the land market has received very little attention. Yet a consideration of many of the factors involved leads to the conclusion that the airport is actually a new contender in a field that is already highly competitive. As the following paragraphs will show, most of the features deemed desirable for fine residential subdivisions are not only desirable but really essential to an efficient airport.

The airplane at present can hold its place as a practical means of transportation only through its great speed. Manufacturers are urging technical staffs to develop greater flight speed in their airplanes, but experience shows that both mechanical and financial considerations set certain practical limits to increased speed. One method, therefore, of meeting this demand for greater speed is to cut down delivery time between the airport and the business center by locating airports adjacent to fast, dependable transportation. It is usually assumed that the airport must be within 30 minutes of the business district, which means that it is located on land particularly desirable for residential subdivisions.

Again the airport must be located on high, well-drained, level land, away from industrial sites[1]—exactly the type of land in demand for residential use. The presence of fog, ground haze or smoke is decidedly detrimental to reliable flying; and to eliminate, or at least to lessen, this hazard the airport must be located on high ground.[2] Safety also requires a well-drained field, which will allow landings to be made at all points and at all times. Finally, the land adjoining the airport must be in such uses as will minimize the smoke hazard. Industrial plants are usually undesirable neighbors not only because of excessive smoke but because of danger from high chimneys.[3] All of these considerations which dominate the selection of land for airports are likewise important conditions for the development of land for residential uses.

Furthermore, the area of land required for a port is large, amounting to about 280 acres, which is sufficient for a complete neighborhood-unit type of subdivision. The very size of areas required for both purposes makes necessary their location on the outskirts of the city, except where water areas are available, and hence the intensification of the competition between the two types of use. The rivalry is further enhanced because the expense of maintaining a well-equipped air terminal is so great as to force airport operators to seek additional sources of revenue. A logical source is, therefore, the development of air terminal communities, with houses for employees, stores, showrooms for airplanes, recreation centers, hotels, restaurants, garages, parking spaces and the like. The newest airport plans (notably those submitted in the recent Lehigh Airports Competi-

[1] "Airport Rating Regulations," United States Department of Commerce, *Aeronautics Bulletin*, No. 16.

[2] "Designing Safe and Adequate Airports," mimeographed report, United States Department of Commerce, p. 3.

[3] The standard 7 to 1 gliding ratio makes high structures near the field detrimental, since a structure 50 feet high on the border of the airport makes 350 feet of the landing field useless.

tion)[4], which provide for all these uses, introduce other elements almost as detrimental to high class residential development as the airport itself.

Finally, there is the competition which arises from the desirability and practice of placing high class residential developments in proximity to beautiful parks, which may possibly in the future be considered legitimately usable as landing fields. A recent decision of the Kansas Supreme Court foreshadows such an outcome. ". . . we are of the opinion that the airport or landing field is as properly included within park purposes as tourist camps and other recreational objects."[5] (These other "recreational objects" had previously been described as tennis courts, playgrounds, golf links, race meets). Clearly such interpretations as this carry the competition of airports into the area of already established residential districts bordering on these parks, instead of limiting it only to potential competition arising out of the race of the two types of use for new and desirable areas for development.

In essence this decision hinges upon the identification of parks and airports both as public purposes and this doctrine of public purpose has further potentialities for the future development of landing fields, and the intensification of their competition with residential land. The concensus of opinion of recent court decisions seems to consider airports a "public purpose," thus allowing municipal airports to be paid for with public money.[6] The firm establishment of this doctrine is likely to result in a great increase in the number of airports. This attitude is further strengthened by such legislation as that passed by Minnesota,[7] Pennsylvania,[8] and Washington,[9] which give their counties and municipalities the right to condemn land for airports by exercise of the power of eminent domain. This may well be considered a grave menace in districts which have hitherto felt secure from the encroachment of airports.

But the favorable legal attitude toward airports is not confined to fostering acquisition of land for such purposes. It is evidenced also in handling the problems of property rights involved in the use of the upper air space. Airports are frequently nuisances from the point of view of owners of residential land in their vicinity. The noise of roaring motors at an active airport may be compared with that incident to a railroad yard. The powerful flashing or rotating airway beacons, often in operation all night, are very likely to annoy neighbors. Recently the largest airplane in the United States crashed just after taking off, the resulting fire demolishing several homes adjacent to the field.[10] This danger may thus constitute another argument against proximity of airports and residences. Other undesirable features of an airport are the heavy ground traffic attracted, particularly on Sundays and holidays; and the type of accompanying commercial development, including gas stations, parking places, and refreshment stands. Such

[4] See *New York Times*, December 15, 1929, p. 10xx; and *Chicago Tribune*, December 8, 1929.

[5] *City of Wichita v. Clapp*, 125 Kas. 100; 263 Pac. 12 (1928); also 1928 U. S. Av. R. 8.

[6] *Doughty v. Mayor and City Council of Baltimore (Md.)*, 141 Atl. 499 (1928); *State ex rel City of Lincoln v. Johnson (Nebr.)*, 220 N. W. 273 (1928); *Dysart v. City of St. Louis (Mo.)*, 11 S. W. (2d) 1045 (1928); *Ennis v. Kansas City (Mo.)*, 11 S. W. (2d) 1054 (1928); *Hesse v. Rath (N. Y.)*, 164 N. E. 342 (1928); *McClintock v. City of Roseburg (Ore.)*, 273 Pac. 331 (1929).

[7] Laws 1923, Ch. 34, Sec. 669-5; Laws 1927, Ch. 62, Sec. 626-2.

[8] Laws 1923, No. 191, Sec. 460; Laws 1923, No. 192, Sec. 460 b-2; Laws 1923, No. 328, Sec. 460 c-2; Laws 1927, No. 494, Sec. 1, 2.

[9] Laws 1925, Ch. 42, Sec. 1.

[10] *Chicago Tribune*, November 28, 1929.

elements as these make a landing field one of the most undesirable neighbors a subdivision development could have.

But what of the rights of owners of residential land in the vicinity of airports? Have they no remedy or protection against the encroachments resulting from the development of air travel and its attendant conditions? The trend of legal decisions seems to be adverse to the interests of the residential land owner. The old English rule, as worked out in the cases, established the theory of absolute ownership of the air space; that is, he who owns the soil owns to the heavens above and to the firey depths beneath. Later opinions have held that there was no trespass in the higher air; that trespass did not occur until the airplane entered the usable column of airspace above a given plot of ground. The modern view is that the aviator is not guilty of trespass while he is flying at a reasonable height (now considered to be 2,000 feet). The courts have held that low-flying airplanes near an airport are not detrimental to the property rights of surrounding land owners. On March 4, 1930, the Massachusetts Supreme Court held that planes flying low over an estate bordering an airport were not trespassing, for they caused no personal discomfort to the people living on the estate and that an easement could not be acquired by the airplane operator, since the flights were not always in the same place.[11]

A somewhat different attitude[12] is taken by those friends of air transport development who would have legislatures give airport companies the right to condemn air rights over property adjacent to the field, the company being required to pay the difference between the value of surrounding property without an airport in the vicinity and its value when subjected to aerial trespass. Property damages would be nominal, except when the airport site was adjacent to high grade residential property. Indiana[13] provides for condemnation of such easements of access by air but does not require compensation for property damage from trespass by airplanes; in short, the state aids aviation at the expense of land owners.

A more hopeful sign, however, is found in the case recently decided by the Alabama Court of Appeals,[14] which maintained that the City of Mobile, in operating its airport, is acting in its corporate capacity and not in its governmental capacity and therefore is liable for the negligence of its agents. In that case the negligence resulted in flooding of the plaintiff's land with water overflowing from the drainage ditches constructed for the airport. To be sure, not all airports are municipally operated and, furthermore, a question may be raised as to whether the rule of liability applies more strictly to public than to private persons. Nevertheless, the opinion reflects a certain critical attitude toward airport operation which may promise better results in the future for the interests of adjacent property owners.

Encouraged by the generally favorable attitude of the courts and the enthusiasm of the public for air transport, airports are rapidly increasing in num-

[11] *Smith v. New England Aircraft Co.*, 1929 U. S. Av. R. 27. See also recent Supreme Court decisions reviewed in 16 *American Bar Association Journal* 219 (April, 1930).

[12] See an excellent article by Charles P. Hine, "Home v. Aeroplane," 16 *American Bar Association Journal* 217 (April, 1930).

[13] Acts 1929, p. 150.

[14] *City of Mobile et al. v. William A. Lartigue*, Alabama Court of Appeals (March 25, 1930) reported in *United States Daily*, April 1, 1930, p. 6.

ber [15] and with this increase in number goes the multiplication and aggravation of problems attendant thereon. What will be the nature of future development in the suburban areas? Will air transportation develop to that point where these air terminal communities will spring up in a great band 75 miles or more around the city, the inhabitants of such regions commuting to the city by airplanes each day? If so, what will be the effect of the competition of this new residential land on the land which has long been considered a suburb of the city?[16]

The foregoing discussion is merely a survey of the field. It clearly indicates the presence of serious problems which are well worth consideration, and which are being made the subject of a more thorough study. To secure factual data on which to base conclusions and possible recommendations the Institute is conducting a survey of 355[17] airports throughout the United States, to obtain, if possible, quantitative data on the effect of airport development on the rights of surrounding property owners. The questionnaire also seeks information as to the amount and kind of air traffic handled, the nature of the improvements surrounding the airport; whether zoning regulations are in force and, if so, what is the classification of the adjacent areas.[18] Realtors and others interested in property surrounding these airports[19] are being asked to tell what their records show with reference to the trend of property values in that neighborhood. While the generally poor market for real estate during the last few years has presented a serious obstacle to the collection of both normal and actual sales figures, at least some indication of the effect of airports on surrounding land values should result from this survey.

JOHN W. RAU, JR.

[15] On January 1, 1928 there were 1,047 airports in the United States ("Civil Aeronautics in the United States," United States Department of Commerce, *Aeronautics Bulletin*, No. 1, p. 10) and by March 1, 1930, the number had increased to 1,478 with additional airports proposed (1 *Air Commerce Bulletin* 19, United States Department of Commerce, March 15, 1930).

[16] "Civilization in an Air Era," *New York Times Magazine*, October 27, 1929, p. 18.

[17] Selected from those listed in the United States Department of Commerce, *Airway Bulletin*, August 1, 1929.

[18] A somewhat similar study has recently been announced by the Aeronautics Branch of the Department of Commerce, although their purpose is definitely the promotion of airport development. "As a result of many requests received from city officials, airport managers and engineers and others interested in the development of adequate airports, for information and suggestions as to suitable airport zoning ordinances to insure protection to the flying public against hazards that might be developed in the vicinity of airports, a cooperative committee on airport zoning has been formed by the Aeronautics Branch of the Department of Commerce to study the matter, prepare suggested ordinances and report its findings and recommendations." (42 *American City* 167, April 1930.)

[19] Names of realtors and others interested in land surrounding airports are supplied by the local real estate boards and chambers of commerce.

PUBLIC UTILITY FINANCING

A PREVIOUS article presented certain facts about public utility financing during the past few years.[1] Information was not then available to summarize the final results for 1929, nor was it possible to trace for any period of time the after effects of the market reaction. These tendencies are now clearer.

Volume of Financing. A tremendous variation in volume of public utility financing is the most noticeable feature

[1] "Utilities in Recent Financial Markets," 6 *Journal of Land & Public Utility Economics* 18–25 (February, 1930).

of the last five months. The index number (Table I) dropped from 319 in September to 86 in October, and to 22 in November, which is the smallest monthly total since July, 1923. Yet within two months, utility financing again reached the stupendous monthly total of $492,000,000,[2] making January, 1930, with an index number of 412 the second largest month in the 11-year period; exceeded only by December, 1927.

The absence of large issues cut the February total to about ⅓ that of January. The number of new issues increased from 21 in January to 29 in February.

[2] Three issues account for almost 60% of the total: $150,000,000 American Telephone & Telegraph Debenture 5's; $87,500,000 Pacific Telephone & Telegraph Common stock; $50,000,000 International Telephone & Telegraph Corp. Debenture 5's.

The year 1929 would have been a record year but for the very small final quarter. It does rank third, however, in the 11-year period; 1927 still remains the biggest year for utility issues.

Utility and Corporate Financing. The relative importance of public utility financing to total corporate financing and to government financing is shown in Table II.

The decline in public utility financing in 1929 was accompanied by no corresponding change in governmental and other corporate financing. As a result, public utility issues, which were 30.26% of the total government plus corporate issues in 1927, declined to 26.53% in 1928 and to 21.05% in 1929.

TABLE I. INDEX NUMBER OF VOLUME OF PUBLIC UTILITY FINANCING, 1919–1930*

	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
By Months												
January	100	67	55	46	122	112	199	173	259	176	169	412
February	48	28	25	47	66	89	172	125	314	220	248	144
March	25	27	25	43	94	78	144	115	158	190	268	...
April	5	38	25	50	64	112	69	182	165	318	107	...
May	15	38	35	150	66	233	103	230	214	203	287	...
June	26	20	9	96	92	122	118	181	130	317	109	...
July	41	25	115	44	21	104	90	177	97	48	276	...
August	20	11	33	22	40	62	93	58	92	82	94	...
September	54	44	34	147	34	77	110	38	168	169	319	...
October	24	33	33	77	59	112	92	123	261	180	86	...
November	8	21	119	43	161	69	102	136	212	127	22	...
December	20	63	53	54	135	111	153	114	433	167	126	...
By Quarters												
1st quarter	100	71	61	80	164	162	299	240	424	340	398	...
2nd quarter	27	56	41	172	129	271	168	344	295	487	292	...
3rd quarter	67	47	105	123	55	141	170	159	207	178	400	...
4th quarter	30	68	119	101	206	169	201	217	528	275	99	...
By Years	100	107	145	212	246	330	373	427	647	570	528	...

*Volume for January, 1919; First Quarter, 1919; and year 1919 used as a basis for computing index numbers for months, quarters, and years respectively. Compiled from the monthly record of new capital flotations of the *Commercial and Financial Chronicle.*

In connection with these volume figures of public utility financing it should be noted, that:

1. All industrial types of utilities (except steam railroads) are included.
2. Foreign companies offering securities in the United States are included.
3. The volume figures through 1929 are the *Chronicle* figures before the revision made in January, 1930. Beginning this year the *Chronicle* separates "Investment Trust, Trading and Holding Companies (not Primarily Controlling)." Prior to this time such issues had been included partly in the "Public Utility" total and partly in the "Miscellaneous" group. The *Chronicle*, at the same time, revised its totals of public utility financing for the corresponding month of the five preceding years. We have here used the unrevised figures prior to 1930.

It might be suggested that the volume figures for 1930 are not comparable with those of the preceding years. One practical difficulty precludes the possibility of revising the total before 1929 to agree with 1930. That difficulty is the fact that the *Chronicle* figures for the previous *five* years only are revised, and this revision is made monthly. The only comparison which could be attempted at present would be to make the January and February totals for 1926 through 1930 comparable, but they would then not be comparable with other months in the same years, nor with earlier years,.

In the analysis of these utility financing figures the foreign issues have been eliminated. What appear to be noncontrolling investment companies have also been excluded; holding and operating company issues have been segregated. (See Table IV.)

TABLE II. VOLUME OF PUBLIC UTILITY ISSUES EXPRESSED AS A PERCENTAGE OF CORPORATE FINANCING AND AS A PERCENTAGE OF GOVERNMENT PLUS CORPORATE FINANCING.*

Year	Percentage of Government Plus Corporate Financing	Percentage of Total Corporate Financing
1919	10.79	16.87
1920	12.39	16.75
1921	15.96	28.07
1922	18.69	31.90
1923	22.81	35.21
1924	24.08	39.85
1925	24.21	36.41
1926	26.57	37.26
1927	30.26	40.90
1928	26.53	33.97
1929	21.05	24.34
1st quarter	26.14	28.78
2nd quarter	19.21	22.51
3rd quarter	23.88	26.06
4th quarter	10.63	14.77
1930		
January	59.70	70.07
February	27.75	34.75

*Computed from summary of corporate and government financing, *Commercial and Financial Chronicle.*

The decline in public utility volume is even more noticeable when expressed as a percentage of only *corporate* financing. In 1927 over ⅖ (40.90%) of the corporate issues were put out by public utilities. The next year about ⅓ (33.97%) were of this class; last year less than ¼. The quarter figures for 1929 show that the decline in volume of public utility financing was sharper and the recovery more rapid than in the case of general corporate financing. During the first three quarters of 1929, utility financing was about 26% of the total corporate; and this percentage was virtually halved (13.52%) in October, and quartered (7.63%) in November. The recovery was even more striking, for 43.71% of the December corporate financing comprised utility issues. The large utility volume in January, 1930, brought the percentage to 70% of the total. A decline in utility issues coupled with an increase in other corporate issues reduced the percentage to 34.75 in February, 1930.

Type of Issue. Stock issues reached a peak of popularity in public utility financing in 1929, if the percentage of stock issues to total public utility financing may be taken as an indication. Last year almost 60% of public utility financing took the form of stock issues (Table III). This percentage, which is

TABLE III. PERCENTAGE OF STOCK, LONG-TERM DEBT AND SHORT-TERM DEBT IN PUBLIC UTILITY FINANCING,* 1919–1930

Period	Stock	Debt	Long-Term Debt	Short-Term Debt
1919	7.8%	92.2%	37.6%	54.6%
1920	12.1	87.9	43.9	44.0
1921	18.7	81.3	70.5	10.8
1922	30.8	69.2	64.5	4.7
1923	23.0	77.0	71.3	5.7
1924	34.1	65.9	57.5	8.4
1925	31.8	68.2	59.5	8.7
1926	24.7	75.3	69.9	5.4
1927	28.5	71.5	66.8	4.7
1928	37.2	62.8	57.7	5.1
1929	58.7	41.3	37.6	3.7
1st quarter	58.1	41.9	40.4	1.5
2nd quarter	40.6	59.4	52.7	6.7
3rd quarter	78.6	21.4	18.1	3.3
1st three quarters	60.9	39.1	35.5	3.6
4th quarter	34.2	65.8	60.8	5.0
1930				
January	17.8	82.2	72.6	9.6
February	26.5	73.5	68.6	4.9

*Computed from summary of government and corporate financing, *Commercial and Financial Chronicle.*

significantly above that for any previous year, marks the culmination of a tendency toward the use of stocks which began in 1927. Less than ¼ of the financing in 1926 was in stocks; the next year 28.5% was in stocks; 37.2% in 1928; and 58.7% in 1929.

As was expected the post-crash period witnessed a noticeable recession in the volume and significance of stock issues. During the first nine months of 1929, 60.9% of the financing was in the form of stocks; in the last quarter but 34.2% took this form. The comparatively small volume of fourth-quarter financing minimized the effect of this low percentage upon the quarterly average. During February, 1930, stock issues increased in comparative importance over January (17.8% to 26.5%). However, this in-

crease was caused by a more rapid decline in debt issues than in stock; not by an increase in the latter. Stock financing fell from $87,500,000 in January to $45,714,820 in February; debt issues fell even more rapidly from $404,000,000 to $126,730,000.

Price of Debt Capital. Using the yield to maturity at offering price to the investor as a measure of the price of public utility debt capital, Table IV indicates the price paid by operating and holding companies.

TABLE IV. WEIGHTED AND SIMPLE AVERAGE YIELD AT OFFERING PRICE OF NEW ISSUES OF DEBT OBLIGATIONS OF PUBLIC UTILITIES, BY HOLDING AND OPERATING COMPANY GROUPS.*

Year	Weighted Average Yield			Simple Average Yield		
	All Issues	Operating	Holding	All Issues	Operating	Holding
1919	6.57	6.53	6.67	6.68	6.63	6.89
1920	7.43	7.40	7.63	7.62	7.58	7.95
1921	7.14	7.09	8.15	7.50	7.46	8.05
1922	6.08	5.99	6.68	6.32	6.26	6.83
1923	5.99	5.92	6.58	6.30	6.27	6.56
1924	5.97	5.86	6.50	6.13	6.08	6.40
1925	5.59	5.48	5.78	5.83	5.77	6.09
1926	5.52	5.38	5.90	5.70	5.64	5.90
1927	5.22	5.13	5.38	5.58	5.50	5.80
1928	5.26	5.09	5.39	5.58	5.41	5.79
1929	5.35	5.08	5.75	5.95	5.73	6.25
1st quarter	5.47	5.50	5.46	5.89	5.83	5.96
2nd quarter	5.00	4.82	5.99	5.97	5.83	6.19
3rd quarter	5.86	5.57	6.08	6.20	5.53	6.56
4th quarter	5.40	5.19	6.53	5.84	5.56	6.45
1930						
January	5.30	5.12	5.67	5.53	5.45	5.69
February	5.58	5.50	6.44	5.83	5.71	6.44
1st two months	5.36	5.22	5.73	5.69	5.61	5.94

*Computed for issues shown in monthly record of new financing in *Commercial and Financial Chronicle*. Because of the additional information desired for this study, some issues included in previous surveys had to be omitted here because of insufficient information.

Last year witnessed an increase in the price per dollar (weighted average yield) and the price per issue (simple average yield) paid for utility debt capital. The increase was much more significant in the simple average yield (5.58% to 5.95%) than in the weighted yield (5.26% to 5.35%) but in both cases the general tendency which began in 1928 toward a higher price for debt capital continued into 1929.

A survey of yields for operating and for holding companies shows that increase occurred in both types (measured by either the simple or the weighted average yield), with one exception. The exception is the decline in the weighted average yield of operating issues from 5.09% to 5.08%. This was the result of very large issues put out at particularly attractive rates.[3] Thus the simple average yield would seem to be a fairer presentation of conditions in the market generally at this time.[4] The simple yield

TABLE V. EXCESS OF SIMPLE AVERAGE YIELD ON HOLDING COMPANY ISSUES OVER OPERATING ISSUES

Period	Percentage
1926	.26
1927	.30
1928	.38
1929	.52
1st quarter	.13
2nd quarter	.36
3rd quarter	1.03
4th quarter	.89
1930	
January	.24
February	.73
Average for 1st two months	.33

on operating company issue increased from 5.41% to 5.73%; that on holding company issues from 5.79% to 6.25%. Measured by the yield at offering price, operating companies have apparently improved their position compared to holding companies in the debt capital markets (Table V).

With reference particularly to the recent quarters, and to the simple average yields as being more representative

[3] Such as the $219,000,000 American Telephone & Telegraph issue sold in the second quarter to yield 4.50%.

[4] The significant effect of large low-yield issues upon the weighted average yield is illustrated in January of this year. Eliminating the $150,000,000 American Telephone and Telegraph Company issue (with a yield of 5.03%) raised the weighted average yield on *operating company issues* from 5.12% to 5.28%. The simple average yield is not influenced so greatly by exceptional issues.

of general conditions (Table IV), the following comments might be made:

1. Holding company yields increased steadily through the first three quarters of 1929.
2. Yields on operating issues remained unchanged from the first to second quarters, and decreased in the third period.
3. As a result the margin between holding and operating yields increased to a peak of 1.03% in the third quarter of 1929.
4. Operating yields increased, while holding yields decreased, during the fourth quarter of 1929, the margin between operating and holding issues falling to .89%.
5. The price of debt capital for both types of companies was lower in January than in the preceding fourth quarter. Holding company issues showed relatively greater improvement and the margin of holding company yields over operating fell to .24% (Table V).
6. Yields increased during February. Again holding company issues showed a greater variation (Table V).

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COMMENTS ON LEGISLATION AND COURT DECISIONS

THE BALTIMORE RAILWAYS CASE AND THE DEPRECIATION MYSTERY*

THREE matters of major significance figure in the recent Baltimore Railways case[1] in the United States Supreme Court. (1) In order to avoid confiscation, should a Commission base the allowance for depreciation on the cost or on the present value of the depreciable property? (2) What is a non-confiscatory rate of return for a street railway property at this time in this locality? (3) Should the value or the cost of easements in public ways be included in the rate-base? The latter two questions are believed not to be of controlling significance, though some of the implications of the majority opinion regarding the rate of return may have important consequences in future litigation.

The division of the Court was mainly on the depreciation issue, and the ruling of the majority in favor of accumulating depreciation on the present value basis introduces far-reaching complications into commission regulation of utilities. Mr. Justice Sutherland for the majority disposed of it all too briefly. Another of the famous, amply documented dissents by Mr. Justice Brandeis, in which Mr. Justice Holmes joined, detailed the opposing considerations, while Mr. Justice Stone also dissented in a terse, separate opinion.

The facts of the situation before the Court, and the opposing views with supporting reasons, can be shortly stated in order to focus on the depreciation problem. The United Railways and Electric Company, faced with declining traffic and deteriorating load factor, applied to the Commission in 1927 for an increase in fares from 8c cash, two tokens for 15c, to a straight 10c cash fare. The Commission allowed a fare of 9c cash, three tokens for 25c. Dissatisfied, the Company obtained in the Maryland courts a ruling that depreciation should be calculated on the present value, rather than cost, of depreciable property. The Commission obediently raised the fare to 10c cash, four tokens for 35c, in order to provide for the added depreciation allowance. Still dissatisfied, the Company again went to the Maryland courts and from a decree of the Court of Appeals sustaining the amended Commission order appealed to the Supreme Court. This appeal rested on the claim that the Commission order would permit a return of only 6.26%, which was alleged to be confiscatory. The Commission filed a cross-appeal, challenging the inclusion in the rate-base of $5,000,000 for the value of easements and the calculation of depreciation on the present value, rather than the cost, basis.

The Opinions of the Court

The easement challenge was summarily disposed of by the majority opin-

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*In the preparation of this review, the writer acknowledges the valuable assistance of his colleague, Prof. Paul J. Raver, who, however, assumes no responsibility for the views expressed. Professor Raver especially does not agree with the writer's opinion of the propriety of the dividend payments by the Baltimore Railways Co. If space permits, the writer hopes Professor Raver's interpretation will be appended to this article.

[1] *United Railways and Electric Co. of Baltimore v. West, et al.*, 280 U. S. 234 (January 6, 1930).

ion.[2] Since, in the instant rate case, the parties, commission, and courts below had acted upon a rate-base valuation of $75,000,000 which included the item for easements, the validity of that item could not now be questioned in the Supreme Court. Mr. Justice Brandeis took exactly the opposite view. The Court should pass upon the point because in a rate order challenged under the Federal Constitution, the federal law, not state law, was controlling; and, under federal law, only the *cost* of obtaining franchises is properly included in the rate-base.[3] Furthermore, he pointed out that elimination of the easements' value from the rate-base would increase the rate of return under the Commission's rates to 6.70%. On the merits of the easement allowance, the dissenting judge was right, though technically Mr. Justice Sutherland was justified in refusing consideration. At any rate the Baltimore case does not stand for a reversal of the earlier position of the Court, excluding franchise value.

Far more important are the implications of Mr. Justice Sutherland's statements regarding a non-confiscatory rate of return. A fair return is "to be tested primarily by present day conditions,"; "annual returns upon capital and enterprise . . . (like other costs) . . . have materially increased the country over," and cannot be tested by decisions made years ago. Applying the Bluefield case,[4] he noted that the Company had been obliged to pay a rate of interest on borrowings since 1920 "well over 7% and this has been the experience of street railway lines quite generally." But, he said, the fair return in regulated industries is "more than current interest on mere investment." Revenues should be sufficient not only to pay operating expenses, set aside for depreciation, and pay interest and reasonable dividends, but also to carry something to the surplus account. Otherwise credit will be impaired. Hence, the 6.26% allowed by the Commission "is clearly inadequate." "In the light of recent decisions of this Court and other Federal decisions, it is not certain that rates securing a return of 7½% or even 8% on the value of the property would not be necessary to avoid confiscation." However, Mr. Justice Sutherland shied away from ruling in this fashion. The Company only sought a rate which would yield about 7.44%, and "upon the present record . . . to enforce rates producing less than this would be confiscatory."[5]

The possible implications of these statements tempt one to stray from more important elements of the case. A few queries seem pertinent. Does acceptance of the Company's interest rate on recent borrowings imply approval of its capital structure? Presumably the Court was aware that the Company's capital structure was heavily weighted with funded debt which the Commission found to be 76% of total capitalization and 90% of

[2] The Commission, however, had been troubled with this problem. In completing valuation proceedings begun in 1912 the Commission found a rate-base value of $77,000,000 as of December 31, 1923, which included $7,000,000 as the value of the Company's easements in public ways. The Company claimed over $18,000,000. The inclusion of easement values in the rate-base was approved by the Maryland Court of Appeals, but the Commission's valuation of this item was criticized as containing an element of earning power. Thereupon the Commission went through the matter again and emerged with a $5,000,000 valuation. This figure was arrived at by adopting 25% of the fee simple value of the easement strip and determining the fee simple value "by adjacent land values, assessment of 1914, and brought up to January 1, 1924, values by increasing them 55%."

[3] For example, *Des Moines Gas Co. v. Des Moines*, 238 U. S. 153 (1915) and *Galveston Electric Co. v. Galveston*, 258 U. S. 388 (1922).

[4] *Bluefield Co. v. Public Service Commission*, 262 U. S. 679 (1923).

[5] Mr. Justice Brandeis felt the rate of return under the Commission's rates sufficient (7.78%) if the value of easements was omitted and the cost basis of computing the depreciation allowance was approved.

the approved rate-base.[6] These conditions indicating over-capitalization may well have been unavoidable, but they certainly tended to enhance the cost of borrowed capital. Does a fair return on capital liabilities, including a margin for surplus, take precedence over a fair return on the rate-base? Moreover, if a non-confiscatory rate of return must be more than current interest, what return will be permitted upon stockholders' equity, especially a rather thin equity? Furthermore, adding together the majority rulings on rate of return and depreciation, does the Court contemplate that rates to be non-confiscatory shall enable a utility with an unmodernized property, an excessive capitalization, and a depressed market for its services to finance accrued obsolescence and supersession not only by debt or stock issues but also by collecting from rate-payers for the same purpose? Finally, let us suppose that commissions and courts feel constrained to follow the majority opinion's language—an implied 8% return with depreciation based on current prices. Will not this mean that street railways may charge almost what they see fit, at least for the next few years or until prices substantially change or until automobile competition stabilizes?

Regardless of how these queries are answered, we should note that this part of the decision—on rate of return—was directly responsible for bringing about the straight 10c cash fare.

As for the basis of the depreciation allowance, the choice before the Court was the cost of the depreciable property or the present value, as held by the Maryland Court of Appeals. As indicated, the majority chose the latter basis. To the Company, this meant a boost in the depreciation allowance for 1927 of 85%, from $883,544 to $1,638,660. The reasoning of Mr. Justice Sutherland was compressed into a paragraph, the gist of which is found in four sentences.

"One of the items of expense to be ascertained and deducted is the amount necessary to restore property worn out or impaired, so as continuously to maintain it as nearly as practicable at the same level of efficiency for the public service . . . . Manifestly, this (depreciation) allowance cannot be limited by the original cost, because, if values have advanced, the allowance is not sufficient to maintain the level of efficiency . . . . (After quoting the Knoxville case, that a utility is entitled to keep unimpaired the value of the property invested) this naturally calls for expenditures equal to the cost of the worn out equipment at the time of replacement; and this, for all practical purposes, means present value. It is the settled rule of this Court that the rate base is present value, and it would be wholly illogical to adopt a different rule for depreciation."

Shortly stated, logic and the practical necessity of financing over-due replacements are the justifications advanced.

The nature of Mr. Justice Brandeis' dissenting views, elaborated at some length in his opinion, can be sketched in outline form:

(1) To base the depreciation allowance on present value misconstrues the purposes of a depreciation charge, namely: (a) to provide in advance for the total net expense of retiring property at the end of useful life thus preserving integrity of the investment; (b) to distribute this expense among accounting years during which property has been used up by consumers; (c) to ascertain the financial results of a year's operations.

(2) Basing the depreciation allowance on the net cost of depreciable property is certain and definite—the "only expense capable of reasonable ascertainment"—and accepted by accountants, by commissions, and by busi-

[6] In this connection the Commission commented on the Company's closed mortgage which hampered financing and necessitated use of a subsidiary to handle certain property additions. Before the Commission also it was "admitted" that the Company could not sell junior securities to obtain money for capital expenditures. (19 Md. P. S. C. R. 46, 57 (1928)). These facts have a distinct bearing upon the depreciation problem.

iness men generally. The present value basis substitutes a speculative and conjectural replacement cost estimate, continually subject to revision.

(3) The choice between the two bases is a practical business matter, not one solvable by legal reasoning.

(4) With the present value basis, present-day consumers would be required "to pay for an assumed operating expense which has never been incurred and which may never arise."

(5) Neither the replacement method of providing for depreciation, nor the various other methods urged, are issues in the instant case. Neither is the relation between the depreciation reserve and accrued depreciation, and deduction therefor, involved.

(6) The Company's charges for depreciation on a percentage of gross revenue basis had been voluntarily adopted, and had been sufficient, with maintenance, to maintain a satisfactory level of efficiency and to provide for needed replacements. The Company had acted as though the allowance were sufficient, for dividends had been paid each year from 1923 through 1927, despite protests to the Commission that the allowance for depreciation was inadequate.[7]

In the labyrinthine subject of depreciation, some narrowing of the issues is essential. The dominant phase of depreciation at issue here was the *basis* of the charge for consumption of property to be levied against rate-payers in order to avoid confiscation.[8] For clarity and convenience, analysis of the case will be compressed to the following aspects: (1) the balance of practical and equitable considerations when the current value basis is applied to the Baltimore Railways Company; (2) the equity of the present value basis as a policy to be generally applied. From choice, the emphasis will be chiefly on what are believed to be the expected effects of this new rule of law.

I. Application of Present Value Basis to Baltimore Railways Co.

The nature of the Company's plight is not altogether clear from the facts in the court opinions, though the briefs of counsel and the Commission's opinions in early stages of the controversy throw additional light on the situation. Were the property and service suffering from deferred maintenance and/or replacements because functional depreciation had not been amply provided for? Had the excess price of new units over retired units been capitalized or not? How had such large replacements been financed? What motives had actuated directors in declaring dividends? In what degree was the Company's distress attributable to failure of patrons to pay the full cost of service and to automobile competition? These and similar questions bear upon the first aspect of the case to be considered. The list below of pertinent information, culled from various published sources, suggests answers.

[7] Mr. Justice Stone's concurring dissent was briefly as follows: Assuming that a depreciation account is to facilitate replacement rather than restoration of original cost, the amount to be carried to a reserve is a question of fact, not of law. "Experience is our only guide. . . ." What "logic requires" should give way before the "facts that the cost of replacements in the past 15 years has been for the most part at higher price levels than at present, that the amount allowed by the Commission for depreciation has been in practice more than sufficient for all replacement requirements throughout the period of higher price levels, and that the Company has declared and paid dividends which were earned only if this depreciation reserve was adequate." The rule of law established by the majority "seems not to follow from *Smyth v. Ames*, and to be founded neither upon experience nor expert opinion and to be unworkable in practice."

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Economic Position of the Company. Weighing this information in the light of general knowledge of present street railway conditions, the following statements as to the Company's economic position seem warranted.

(1) The Company had pursued a more or less hand-to-mouth modernization policy and probably faced a period of relatively heavy reconstruction expenditures. The retirements and replacements had not fully kept pace with obsolescence and supersession, accelerated by automobile competition.

(2) The equipment in use was well maintained, a fact noted by both Commission and courts.

(3) The depreciation reserve, accumulated by the Company voluntarily on the same basis since 1912, had proved adequate to take care of all ordinary and some unanticipated replacements, leaving a balance in the reserve. This appears to have been the case only if the reserve were charged with the original cost of retired units of property, leaving the excess cost of replacing units at present prices to be carried to an asset account and (a) offset by debts to lenders or (b) amortized through operating expenses after the replacement is installed.[9] The Balti-

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(4) As the need for modernizing replacements accumulated, the strain on the reserve, even with the above methods of capitalizing and amortizing price increases, seemed likely to increase as long as the 5% of gross revenue method of accumulation was followed.[10]

(5) The Company appeared to be overcapitalized, not only in relation to the rate-base but also to earning power in the market, despite protection from jitney competition. Its capital structure had too thin an equity.

(6) The costs of financing on borrowed capital were high. To what extent this can be attributed to the Company's closed mortgage, necessitating use of a subsidiary to finance property additions, to over-capitalization, to automobile competition or other factors, it is impossible to deduce from evidence at hand.

(7) The reason for the payment of dividends in the foregoing situation is not clear, unless it was necessary for sustaining the credit of the Company.

(8) The total demand for street railway service had decreased largely as a result of automobile competition. But operating expenses and capacity costs per passenger had increased; the peak load was greater while off-peak riding was less.

Practical Considerations. Fitting these evidentiary facts together, a practical financial justification for the majority's rule appears. The Company was faced with a need for larger rejuvenation of the property than hitherto possible in order to withstand further inroads on its traffic and higher operating costs. The burden of higher prices of efficiency-maintaining replacements had been substantially borne by bondholders, to such an extent that further absorption by them at moderate interest rates seemed to be at an end; by the same token patrons during the high-price period had not been paying the full cost of higher-priced replacements. Patrons had been paying for *use* of property in depreciated dollars but had paid for *using up* property in what may be called historical cost dollars. The time had come to ask car-riders of the present and future to bear the full burden of functional depreciation and enhanced prices. In return for this they might expect an improved quality of service, sustained efficiency and perhaps greater economies. Assuming that the Baltimore street railway was to continue as an efficient going concern, the car-riders must come to the rescue.

Equitable Considerations. This practical view of the situation is persuasive but some equitable considerations should be thrown in the scales. Let us first state a case on equitable grounds for the majority rule. If utilities are to be treated as going concerns, rate-payers must meet the full costs of service, including advance provision for the costs of necessary replacements on account of unpredictable obsolescence, inadequacy and supersession. Even though such replacements cost more than did the retired units, because of higher prices, consumers must pay these higher costs not only to maintain efficiency and avoid confiscation[11] but also to sustain an always modern service. Baltimore car-riders since the War have not paid this bill in toto. Part of it has been met permanently or temporarily by investors and owners. In fairness to bondholders and stockholders, patrons should now foot the bill.

The owners disclaim shifting all risks of the business to car-riders. Uncompensated past cycles of obsolescence—horse cars to cable cars to electricity—are not included in the bill. But patrons should pay for at least some, if not all, of the obsolescence and supersession occasioned by the automobile. And they

[10] Note stabilized revenue and declining traffic.

[11] For further elaboration of this point of view, see Fritz Schmidt, "The Basis of Depreciation Charges", 8 *Harvard Business Review* 257 (April, 1930).

should pay not in dollars with past purchasing power but in dollars of current purchasing power, just as the Company has to pay equipment manufacturers in depreciated dollars for the replacements benefiting consumers. If paying on this basis results in rates higher than the value of the service, the stockholders are the residual risk-bearers. But because of automobile competition, the failure to collect for unanticipated obsolescence and supersession, not coverable by insurance, is not negligence and hence not a risk chargeable to owners of the equity. In the past, rate-payers have benefited from the lag of regulated rates behind costs; now the balance should be restored.

Finally, the dividend payments in certain past years are not an evidence of managerial negligence or owners' cupidity. They were necessary to sustain the Company's credit whereby enhanced replacement costs could be financed. This was essential because car-riders' pocket-books were not contributing their fair share.

Yet there are offsetting equitable factors. Even though we grant that consumers should pay for property consumption on account of obsolescence and supersession, it does not follow as a matter of equity that all such depreciation should be borne by car-riders. Part of the Baltimore Railways' depreciation has resulted from automobile competition. This is a risk of the business which should fall more on stockholders than on car-riders.[12] It is the same species as displacement of cable cars by electricity. To say that stockholders have borne all of this latest risk that they should, via reduced dividends, is to ignore the effect of over-capitalization and the closed mortgage. The burden of managerial misjudgment in the past should not all be shifted to rate-payers,[13] else the doctrine of confiscation will mean a guarantee of risklessness. Moreover, to provide for risks of this kind is supposed to be one of the functions of a surplus, and there is no clear evidence that stockholders drew upon their moderate surplus for this purpose.

If there were some arrears in replacements, the lag of regulated prices is no doubt partly responsible. But if this fact were known to management, the payment of dividends seems inequitable both to rate-payers and the bondholders. These dividends do not solely, or even principally, indicate a misrepresentation of the Company's accounts, as Mr. Justice Brandeis pointed out; they indicate a diversion of revenues, paid by consumers, from a proper provision for replacements during a time when the acceleration of obsolescence and supersession from automobile competition was known;[14] they may even be said to amount to a repayment of capital. In itself, this was not playing fair with the patrons, even granting the inequity of the lag of regulation; either the dividend payments should have gone to the depreciation reserve or been held in surplus to cover the accumulated risk of competitive market loss. To justify the dividends on the ground of maintaining the Company's credit in the eyes of bondholders passes over what the stockholders were already doing to their creditors.

[12] To be sure, the Company's originally claimed depreciation allowance did not prevail, but the effect of the majority's ruling on the rate of return was to recoup some of this lost ground.

[13] *Knoxville v. Knoxville Water Co.*, 212 U. S. 1, 14 (1909). But rate-payers may not recoup from excessive depreciation reserves, which is an important principle if the present-value basis results in excessive reserves. (*Board of P. U. Commissioners v. N. Y. Telephone Co.*, 271 U. S. 23 (1926)).

[14] Curiously, the dividends paid, though only 4%, amounted each year to slightly more than the increased annual allowance for depreciation finally obtained by the Company.

ion.[2] Since, in the instant rate case, the parties, commission, and courts below had acted upon a rate-base valuation of $75,000,000 which included the item for easements, the validity of that item could not now be questioned in the Supreme Court. Mr. Justice Brandeis took exactly the opposite view. The Court should pass upon the point because in a rate order challenged under the Federal Constitution, the federal law, not state law, was controlling; and, under federal law, only the *cost* of obtaining franchises is properly included in the rate-base.[3] Furthermore, he pointed out that elimination of the easements' value from the rate-base would increase the rate of return under the Commission's rates to 6.70%. On the merits of the easement allowance, the dissenting judge was right, though technically Mr. Justice Sutherland was justified in refusing consideration. At any rate the Baltimore case does not stand for a reversal of the earlier position of the Court, excluding franchise value.

Far more important are the implications of Mr. Justice Sutherland's statements regarding a non-confiscatory rate of return. A fair return is "to be tested primarily by present day conditions,"; "annual returns upon capital and enterprise . . . (like other costs) . . . have materially increased the country over," and cannot be tested by decisions made years ago. Applying the Bluefield case,[4] he noted that the Company had been obliged to pay a rate of interest on borrowings since 1920 "well over 7% and this has been the experience of street railway lines quite generally." But, he said, the fair return in regulated industries is "more than current interest on mere investment." Revenues should be sufficient not only to pay operating expenses, set aside for depreciation, and pay interest and reasonable dividends, but also to carry something to the surplus account. Otherwise credit will be impaired. Hence, the 6.26% allowed by the Commission "is clearly inadequate." "In the light of recent decisions of this Court and other Federal decisions, it is not certain that rates securing a return of 7½% or even 8% on the value of the property would not be necessary to avoid confiscation." However, Mr. Justice Sutherland shied away from ruling in this fashion. The Company only sought a rate which would yield about 7.44%, and "upon the present record . . . to enforce rates producing less than this would be confiscatory."[5]

The possible implications of these statements tempt one to stray from more important elements of the case. A few queries seem pertinent. Does acceptance of the Company's interest rate on recent borrowings imply approval of its capital structure? Presumably the Court was aware that the Company's capital structure was heavily weighted with funded debt which the Commission found to be 76% of total capitalization and 90% of

[2] The Commission, however, had been troubled with this problem. In completing valuation proceedings begun in 1912 the Commission found a rate-base value of $77,000,000 as of December 31, 1923, which included $7,000,000 as the value of the Company's easements in public ways. The Company claimed over $18,000,000. The inclusion of easement values in the rate-base was approved by the Maryland Court of Appeals, but the Commission's valuation of this item was criticized as containing an element of earning power. Thereupon the Commission went through the matter again and emerged with a $5,000,000 valuation. This figure was arrived at by adopting 25% of the fee simple value of the easement strip and determining the fee simple value "by adjacent land values, assessment of 1914, and brought up to January 1, 1924, values by increasing them 55%."

[3] For example, *Des Moines Gas Co. v. Des Moines*, 238 U. S. 153 (1915) and *Galveston Electric Co. v. Galveston*, 258 U. S. 388 (1922).

[4] *Bluefield Co. v. Public Service Commission*, 262 U. S. 679 (1923).

[5] Mr. Justice Brandeis felt the rate of return under the Commission's rates sufficient (7.78%) if the value of easements was omitted and the cost basis of computing the depreciation allowance was approved.

the approved rate-base.[6] These conditions indicating over-capitalization may well have been unavoidable, but they certainly tended to enhance the cost of borrowed capital. Does a fair return on capital liabilities, including a margin for surplus, take precedence over a fair return on the rate-base? Moreover, if a non-confiscatory rate of return must be more than current interest, what return will be permitted upon stockholders' equity, especially a rather thin equity? Furthermore, adding together the majority rulings on rate of return and depreciation, does the Court contemplate that rates to be non-confiscatory shall enable a utility with an unmodernized property, an excessive capitalization, and a depressed market for its services to finance accrued obsolescence and supersession not only by debt or stock issues but also by collecting from rate-payers for the same purpose? Finally, let us suppose that commissions and courts feel constrained to follow the majority opinion's language—an implied 8% return with depreciation based on current prices. Will not this mean that street railways may charge almost what they see fit, at least for the next few years or until prices substantially change or until automobile competition stabilizes?

Regardless of how these queries are answered, we should note that this part of the decision—on rate of return—was directly responsible for bringing about the straight 10c cash fare.

As for the basis of the depreciation allowance, the choice before the Court was the cost of the depreciable property or the present value, as held by the Maryland Court of Appeals. As indicated, the majority chose the latter basis. To the Company, this meant a boost in the depreciation allowance for 1927 of 85%, from $883,544 to $1,638,660. The reasoning of Mr. Justice Sutherland was compressed into a paragraph, the gist of which is found in four sentences.

"One of the items of expense to be ascertained and deducted is the amount necessary to restore property worn out or impaired, so as continuously to maintain it as nearly as practicable at the same level of efficiency for the public service . . . . Manifestly, this (depreciation) allowance cannot be limited by the original cost, because, if values have advanced, the allowance is not sufficient to maintain the level of efficiency . . . . (After quoting the Knoxville case, that a utility is entitled to keep unimpaired the value of the property invested) this naturally calls for expenditures equal to the cost of the worn out equipment at the time of replacement; and this, for all practical purposes, means present value. It is the settled rule of this Court that the rate base is present value, and it would be wholly illogical to adopt a different rule for depreciation."

Shortly stated, logic and the practical necessity of financing over-due replacements are the justifications advanced.

The nature of Mr. Justice Brandeis' dissenting views, elaborated at some length in his opinion, can be sketched in outline form:

(1) To base the depreciation allowance on present value misconstrues the purposes of a depreciation charge, namely: (a) to provide in advance for the total net expense of retiring property at the end of useful life thus preserving integrity of the investment; (b) to distribute this expense among accounting years during which property has been used up by consumers; (c) to ascertain the financial results of a year's operations.

(2) Basing the depreciation allowance on the net cost of depreciable property is certain and definite—the "only expense capable of reasonable ascertainment"—and accepted by accountants, by commissions, and by busi-

[6] In this connection the Commission commented on the Company's closed mortgage which hampered financing and necessitated use of a subsidiary to handle certain property additions. Before the Commission also it was "admitted" that the Company could not sell junior securities to obtain money for capital expenditures. (19 Md. P. S. C. R. 46, 57 (1928)). These facts have a distinct bearing upon the depreciation problem.

iness men generally. The present value basis substitutes a speculative and conjectural replacement cost estimate, continually subject to revision.

(3) The choice between the two bases is a practical business matter, not one solvable by legal reasoning.

(4) With the present value basis, present-day consumers would be required "to pay for an assumed operating expense which has never been incurred and which may never arise."

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(7) The reason for the payment of dividends in the foregoing situation is not clear, unless it was necessary for sustaining the credit of the Company.

(8) The total demand for street railway service had decreased largely as a result of automobile competition. But operating expenses and capacity costs per passenger had increased; the peak load was greater while off-peak riding was less.

Practical Considerations. Fitting these evidentiary facts together, a practical financial justification for the majority's rule appears. The Company was faced with a need for larger rejuvenation of the property than hitherto possible in order to withstand further inroads on its traffic and higher operating costs. The burden of higher prices of efficiency-maintaining replacements had been substantially borne by bondholders, to such an extent that further absorption by them at moderate interest rates seemed to be at an end; by the same token patrons during the high-price period had not been paying the full cost of higher-priced replacements. Patrons had been paying for *use* of property in depreciated dollars but had paid for *using up* property in what may be called historical cost dollars. The time had come to ask car-riders of the present and future to bear the full burden of functional depreciation and enhanced prices. In return for this they might expect an improved quality of service, sustained efficiency and perhaps greater economies. Assuming that the Baltimore street railway was to continue as an efficient going concern, the car-riders must come to the rescue.

Equitable Considerations. This practical view of the situation is persuasive but some equitable considerations should be thrown in the scales. Let us first state a case on equitable grounds for the majority rule. If utilities are to be treated as going concerns, rate-payers must meet the full costs of service, including advance provision for the costs of necessary replacements on account of unpredictable obsolescence, inadequacy and supersession. Even though such replacements cost more than did the retired units, because of higher prices, consumers must pay these higher costs not only to maintain efficiency and avoid confiscation[11] but also to sustain an always modern service. Baltimore car-riders since the War have not paid this bill in toto. Part of it has been met permanently or temporarily by investors and owners. In fairness to bondholders and stockholders, patrons should now foot the bill.

The owners disclaim shifting all risks of the business to car-riders. Uncompensated past cycles of obsolescence—horse cars to cable cars to electricity—are not included in the bill. But patrons should pay for at least some, if not all, of the obsolescence and supersession occasioned by the automobile. And they

[10] Note stabilized revenue and declining traffic.

[11] For further elaboration of this point of view, see Fritz Schmidt, "The Basis of Depreciation Charges", 8 *Harvard Business Review* 257 (April, 1930).

should pay not in dollars with past purchasing power but in dollars of current purchasing power, just as the Company has to pay equipment manufacturers in depreciated dollars for the replacements benefiting consumers. If paying on this basis results in rates higher than the value of the service, the stockholders are the residual risk-bearers. But because of automobile competition, the failure to collect for unanticipated obsolescence and supersession, not coverable by insurance, is not negligence and hence not a risk chargeable to owners of the equity. In the past, rate-payers have benefited from the lag of regulated rates behind costs; now the balance should be restored.

Finally, the dividend payments in certain past years are not an evidence of managerial negligence or owners' cupidity. They were necessary to sustain the Company's credit whereby enhanced replacement costs could be financed. This was essential because car-riders' pocket-books were not contributing their fair share.

Yet there are offsetting equitable factors. Even though we grant that consumers should pay for property consumption on account of obsolescence and supersession, it does not follow as a matter of equity that all such depreciation should be borne by car-riders. Part of the Baltimore Railways' depreciation has resulted from automobile competition. This is a risk of the business which should fall more on stockholders than on car-riders.[12] It is the same species as displacement of cable cars by electricity. To say that stockholders have borne all of this latest risk that they should, via reduced dividends, is to ignore the effect of over-capitalization and the closed mortgage. The burden of managerial misjudgment in the past should not all be shifted to rate-payers,[13] else the doctrine of confiscation will mean a guarantee of risklessness. Moreover, to provide for risks of this kind is supposed to be one of the functions of a surplus, and there is no clear evidence that stockholders drew upon their moderate surplus for this purpose.

If there were some arrears in replacements, the lag of regulated prices is no doubt partly responsible. But if this fact were known to management, the payment of dividends seems inequitable both to rate-payers and the bondholders. These dividends do not solely, or even principally, indicate a misrepresentation of the Company's accounts, as Mr. Justice Brandeis pointed out; they indicate a diversion of revenues, paid by consumers, from a proper provision for replacements during a time when the acceleration of obsolescence and supersession from automobile competition was known;[14] they may even be said to amount to a repayment of capital. In itself, this was not playing fair with the patrons, even granting the inequity of the lag of regulation; either the dividend payments should have gone to the depreciation reserve or been held in surplus to cover the accumulated risk of competitive market loss. To justify the dividends on the ground of maintaining the Company's credit in the eyes of bondholders passes over what the stockholders were already doing to their creditors.

[12] To be sure, the Company's originally claimed depreciation allowance did not prevail, but the effect of the majority's ruling on the rate of return was to recoup some of this lost ground.

[13] *Knoxville v. Knoxville Water Co.*, 212 U. S. 1, 14 (1909). But rate-payers may not recoup from excessive depreciation reserves, which is an important principle if the present-value basis results in excessive reserves. (*Board of P. U. Commissioners v. N. Y. Telephone Co.*, 271 U. S. 23 (1926)).

[14] Curiously, the dividends paid, though only 4%, amounted each year to slightly more than the increased annual allowance for depreciation finally obtained by the Company.

To the extent that the price increases of replacements were financed through capital account, the physical property behind the debt securities was enhanced in dollar value without any change in the physical use-values of that investment, and without any change in the rate-base. When, in addition, the local market for street railway services was sagging, the payment of any dividends seems definitely adverse to bondholders' interests and untenable as a means of preserving credit, at least so far as available information indicates.

Even if we grant that car-riders should pay for consumption of property in the same depreciated dollars paid for use, that dividend payments be condoned, and that all risks of competitively-caused depreciation should and can be charged to rate-payers, the present value rule might well be inequitable. Though price increases have been capitalized, the ledger costs of bondholders' and stockholders' investments, are still below the reproduction-cost rate-base, while the rate-base in turn is below the outstanding securities at par.[15] If this is the case, here are three levels of value. So far as replacements alone are concerned, by use of the present value depreciation basis the owners now ask car-riders to peg the margin between investors' and owners' actual contributions to ledger investment and the reproduction-cost rate-base, with the result that rate-payers will be deprived, for a prolonged period, of the benefit of the gradually closing margin. Phrased in another way, the new depreciation basis means that as future replacements are made, part of the enhanced book costs of assets will represent consumers' contributions via the depreciation reserve instead of investors' contributions via bond and note issues. Meanwhile, owners continue to be permitted to earn on an appreciated rate-base (the second level) and their rate of return after paying for borrowed capital is enhanced by a rather thin equity. Does not this amount to a validation of much of the Company's over-capitalization (the third level)? While rate-payers contribute enough to prevent price increases from redounding to their advantage, owners are to receive earnings on a rate-base exceeding the book cost of their own and bondholders' investments, this increment feeding an excessive amount of security obligations. Though the causes of the Company's over-capitalization are obscure, it seems hardly fair to shift that burden wholly or largely to car-riders merely because the market for street railway service has slumped. To be sure, that market may revolt, and revenues may not be sufficient to fulfill the Company's apparent designs. Moreover, a price decline may occur, bringing down the rate-base nearer to the investors' and owners' actual contributions to assets. But neither of these happenings is certain, and meanwhile the inequities of the present value depreciation base exist.

Summarizing to this point, financial expediency[16] lends great weight to the majority's rule applied to the Baltimore Railways Company, and probably outweighs the equities of the situation as long as street railway service is needed in that community. This conclusion is premised, however, on the often-honored, but sometimes broken, judicial rule of judging each case on its merits.

[15] Bond discounts are excluded from consideration for simplicity's sake. Likewise the future effect of financing additions and betterments by capital issues is excluded because the problem revolves around the treatment of replacements only.

[16] The Commission even considered the proposition of a receivership for the Company in order to wipe the slate clean and begin anew. It was rejected on grounds of expense, even if the Commission had power to force such reorganization.

If application of the present value rule is to be applied indiscriminately, perhaps expediency in this case should have been sacrificed.

II. General Application of Present Value Basis of Depreciation

Is the policy approved by the majority equitable and wise, when applied to street railways as a whole or to other utilities? We have partly covered the ground in the foregoing analysis. Many additional comments seem worth while as a basis for further discussion of this intricate subject. It would be profitable to inquire into the effects of the present value depreciation basis upon the adjustment of consumers', investors', and owners' interests and upon the powers and duties of regulatory agencies. Such an inquiry might lead to the conclusion that if depreciation allowances are made in depreciated dollars, worse evils than a sacrifice of logic would ensue. The previous discussion of applying the new rule to the Baltimore Railways Company gives clues for projecting into this broader field.

For present purposes the effects upon the valuation controversy, in case the new basis of depreciation allowances is generally applied, deserve further attention, even at the risk of some repetition. One aspect, in particular, merits emphasis—the discrepancy between the reproduction-cost and investment rate-base.

In connection with the Baltimore Railways Company, it was pointed out how the present value depreciation basis might operate to stabilize a margin between a reproduction-cost rate-base and the dollar contributions of investors and owners to assets. This does not mean that *book costs* of assets would be pegged below the rate-base. Under usual accounting practices, book costs would continue to increase as more replacements at the higher present prices were made. As long as prices of new units exceed the costs of retired units and the difference is contributed by investors or owners, i. e. price increases are capitalized, the usual existing spread between the two rate-bases is constantly narrowed. This tends to reduce the margin of advantage to owners from use of the reproduction-cost standard.

Consider now what happens when the higher prices of replacements are covered by larger depreciation allowances out of revenues. If the higher priced replacements are charged to the reserve, consumers are bearing directly the burden of higher prices. In effect, they make a contribution to the book costs of assets over and above the original contributions of investors and owners. With the progress of these higher priced replacements, a greater proportion of the ledger costs of assets become represented by consumer contributions; whereas capital contributions by owners and investors, except for additions and betterments, tend to remain at a standstill, or, expressed as a ratio of total book costs, decline. Meanwhile, however, the reproduction-cost-new rate-base remains at the higher figure as long as prices remain stable.

How significant are these two plateaus of value? Unless offset in some manner, owners may operate on both. On the higher level they may test regulated rates for confiscation and determine the equities as between rate-payers and themselves; on the lower level, they adjust contracts with creditors. Assuming no over-capitalization, this tends to perpetuate, and perhaps enhance, the opportunity for owners to profit by the excess of a reproduction-cost rate-base over an investment rate-base; moreover, a longer period of price declines will be

necessary to bring the two into correspondence again.

It is, of course, to the advantage of owners to maintain such a spread as long as the emphasis continues to be placed on reproduction cost, or other adjustments are not made.[17] But one may well ask whether under the circumstances the equity of the investment standard of valuation is not heightened. Under the present value depreciation rule, customers are required to contribute to a depreciation reserve whereby for a prolonged period they may be deprived of the benefit of a gradual rapprochement between reproduction-cost and investment rate-bases. The courts have often said in upholding a reproduction-cost rate-base that owners who gain from appreciation on a rising price level stand to lose when prices go down. This doctrine now seems on the way to the scrap heap. If the new rule is generally applied, owners may batten down their existing appreciation and postpone giving it up when losses from falling prices begin. This gives an added weapon to the investment standard advocates, unless (1) consumer contributions to higher priced assets are earmarked and excluded from the reproduction-cost rate-base, or (2) a different method of handling deductions for accrued depreciation is devised. Both such offsetting adjustments would tend to work in the direction of a change to the investment standard.

By way of summary, the following statements seem justifiable:

(1) The present-value basis of charging consumers for depreciation or retirement allowances has merit as a practical, financial expedient when applied to an un-modernized, hard-pressed utility property operating in a sagging or stabilized market and on a higher price level not likely to decline greatly in the near future. This is the situation of most street railways today, but it is not clear whether or not the market will support this financial expedient.

(2) On grounds of logic, the majority's ruling also has good footing, if logical principles are regarded as chiefly applicable.

(3) Considering possible and probable long-time effects of the majority's principle, however, the scales seem to incline in the opposite direction, not only because of the *practical* considerations stressed by Mr. Justice Stone and Mr. Justice Brandeis, but also on grounds of *equity*, emphasized by Mr. Justice Brandeis and enlarged above. It remains to be seen whether the courts, commissions and companies will limit application of the current-price principle to pertinent situations, in accordance with the judicial rule of gradual exclusion and inclusion, or will change their attitudes toward other elements of the depreciation problem or toward valuation standards so as to offset what seem undesirable effects of the new rule.

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[17] The effects upon holding companies would be most interesting to follow up. Off-hand, keeping down the capitalization of price increases appears to augment the profit-taking by holding companies which may already have paid a steep price for the property, capitalized that price, and thinned the equity still more by their own capital structure.

BOOK REVIEWS

MacKaye, Benton. THE NEW EXPLORATION: A PHILOSOPHY OF REGIONAL PLANNING. *New York: Harcourt, Brace & Co., 1928. pp. xiv, 228. $3.*

The tremendous extension of the scope of planning activity, particularly since the War, makes necessary a pause for the development of a philosophy of planning; possible objections must be weighed, a scale of values must be established. Certain objectives are implicit in much planning work, but our discussion of them has been far too incidental and fragmentary. No one expects general agreement in such thinking but close examination and frank discussion are essential. Mr. Mackaye's philosophy is an excellent example of the kind of treatment that is needed.

American history, according to Mr. Mackaye, has been composed of four migrations: the "outflow" led by the covered wagon, the "reflow" caused by steam power which concentrated population in some areas; the "inflow" or building up of metropolitan centers of finance, management, and control symbolized by the skyscraper; and finally, the "backflow" from the metropolitan concentration and congestion. All of these movements are going on in some degree but the third and fourth are the dominant ones of this age. The fourth particularly requires observation and control. From it has sprung the metropolitan economy, a headless unorganized flood of men and machines which destroys the indigenous cultures of the rural and the truly urban environments. The confining and controlling of this "super-city" growth with its noise, confusion, crowding, its needless standardization and its wasting of human power is the major problem of regional planning. The basic shortcoming of this metropolitan growth he finds is a confusion of means and ends.

The control of physical development to conserve natural resources, to facilitate commodity flow, and to foster a harmonious environment for human life is the function of regional planning; it constitutes the "new exploration." The old exploration was achieved largely by the physical and natural scientist and the pioneer, the new must be entrusted largely to the economist and the engineer. But Mr. Mackaye champions the non-expert in regional planning. "The true planner is a seeker—a revealer: he must guard himself from dogma as he would from poison. This is a special admonition to the technical planner. And the best guard he can procure is the amateur planner."

The book contains brief, pointed discussion of connected parks, reserves, and trails; the preservation of natural features and historical spots; the control of intertowns, i. e., of highway and roadside development, and billboard control. Maps help to clarify the examples used, most of which are from the eastern states. But Mr. Mackaye never loses sight of his main thesis which probably is nowhere better stated than in the following sentences:

"The open conflict of worker vs. owner is a struggle for wages and hours—for bread and for *time*. The dormant conflict of indigenous vs. metropolitan is a struggle for home and for *space:* it is a struggle for a livable environment. The proletarian is conscious of his struggle and faces his opponent—and the issue: he stays and fights it out with 'the owner.' The citizen is unconscious of his struggle and flees from his opponent—and the issue: if he has the means he gathers up his children and tries to run away from 'the city.' Environment, or the *space* in

which to live, is as humanly fundamental as leisure, or the time in which to live; but the struggle for 'space' is as sickly and puny as the struggle for 'time' is vigorous and violent. We seek not that the struggle for environment should ever become violent, we do seek that it should become conscious and deliberate."

The writer felt in reading certain passages that Mr. Mackaye was prone to idealize his pictures of former methods of life. The author recognizes the possibilities which our present industrial order may open up but in filling in the picture he almost always looks back; e. g., the rural village embodies "a rounded, if elementary development of genuine culture—physical, intellectual, artistic." The description by others of the same scene gives a picture rather less symmetrical and complete. But this bias, if it does exist, is slight. He may also underestimate the depth of the roots of the situations he deplores. The present distribution of wealth raises obstacles that are not given much prominence. Again, his confidence in means of public control of urban land use seems undisturbed by recent experiences and the makeshift methods which have been forced on planning and zoning bodies in the past.

The New Exploration is recommended for careful reading by everyone who wants a critical estimate of present day urban living. Probably every reader will want to raise objections at many points. The existence of such objections is an indication of the penetration of the author and the value of the material under discussion.

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BOOK NOTICES

Long, Howard. KINGSPORT: A ROMANCE OF INDUSTRY. *Kingsport, Tennessee: Sevier Press, 1928. pp. xiv, 304. $2.50.*

Kingsport, this made-to-order community in eastern Tennessee, has a unique experience to share with other communities. In so far as the author's purpose is to give to people outside Kingsport "an idea of the magnificent theories of industry which are being put into practice there, and of the scope of the city's industrial operations" and "to give to the citizens themselves a more complete understanding and appreciation" of their city, his heroics are very successful.

But the land economist wishes a different emphasis and distribution of the material. The book is divided into three parts: the historical background, the building of the city, and the industrial picture. This last section, which is an account of the 15 plants located in Kingsport with some description of their industrial processes, occupies nearly half of the book. Part II, with its bare 74 pages, contains the meat of the book from the point of view of land economics.

The aim of the founders was to build at Kingsport "an ideal industrial city," and the principles which guide them have contributed to the steady growth of the city during the 11 years since it was founded. These principles include a choice of location having advantages of transportation, natural resources and situation; drafting of plans for the physical development of the city and for effective governmental organization; careful selection of industries with a view to their sympathetic attitude toward conservation of natural resources and cooperation with the other industrial units in the community. The essence of the story is found in the fact that here is a *planned* community and the success it has attained may be attributed to the wisdom of the planning. The book is interesting reading but the regret is that more attention was not given to explaining how this cooperation and coordination of industries is fostered, how its city plan is maintained and developed, and how the conservation program is enforced. Such details would in no way have detracted from the interest of the story and would at the same time have been a more valuable contribution to the literature of city building.

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